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TRAINING
FOR EFFECTIVE STUDY

A PRACTICAL DISCUSSION OF EFFECTIVE METHODS FOR TRAINING SCHOOL PUPILS TO ORGANIZE THEIR STUDY PROCEDURE

BY

FRANK W. THOMAS
DIRECTOR OF DEPARTMENTS
OF EDUCATION AND TEACHER-TRAINING
STATE TEACHERS COLLEGE, FRESNO, CALIFORNIA

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TO

MY MOTHER

THROUGH WHOSE INFLUENCE
AND ENCOURAGEMENT I FIRST
LEARNED THE PLEASURE OF
STUDY

EDITOR'S INTRODUCTION

This volume gives emphasis, in a very practical form, to a relatively new and a very important aspect of the problem of teacher training. Up to at least very recently, and in altogether too many cases still, our normal schools and teacher-training institutions have placed the main emphasis on special methods and practice in teaching. The so-called special-methods courses in the various elementary-school subjects have been given an emphasis clearly beyond their importance in the training of a teacher, and practice in classroom instruction, often without much careful guidance as to means and ends, has been depended on, along with a little psychology, to transform the beginner into a trained and accomplished teacher.

The author of the present volume in the Riverside Textbooks in Education has taken an entirely different view of the process of teacher training, and has placed the emphasis on training pupils to organize their study procedure in an effective manner and to learn to think. Instead of training teachers to assign lessons, control discipline, and hear recitations from textbooks which the pupils have been directed to memorize, he would have teachers trained to direct pupils in study habits, and thus emancipate them from a dependence on both textbooks and teachers. He would make the

children do the thinking and most of the talking in the recitation, the teacher merely directing the process and stimulating the pupils to further activity. To do this, though, involves that the teacher be trained to look after the preparation of the conditions for study, think out in advance and direct the pupils as to what they are to do, properly motivate the work to be done, cause the pupils to erect standards for their work, develop in them effective methods for attacking problems, and out of such work train the pupils to think for themselves and direct their conduct in a democratic society such as our own.

Such work he rightly holds to be a far more fundamental function of the teacher than the assignment of lessons, the hearing of recitations, and the testing for the memorization of facts. In other words, he shifts the main emphasis from the recitation itself to the preparation for the recitation, from the accumulation of knowledge to learning how to find and use knowledge, from the gathering of information to learning how to use it and hence stand on one's own feet, from drill to appreciation and expression, from learning facts to fitting for responsibilities, and from discipline by rules to training for rational self-control. The function of the teacher then changes from that of hearing recitations to that of guiding and directing pupils, from that of teaching them the accumulated knowledge of the past to widening their horizons, and to that of training pupils, through the medium of the directed

work of the school, for a life of intelligent self-direction amid the real problems of our political and industrial society.

The careful study of such a volume by the students in training in our normal schools and teacher-training classes, based as it is on the psychology of the instincts and of thinking, could displace, with advantage, much of the special-methods work now given to intending teachers. It deals with the fundamental underlying methods for training pupils to think and to acquire and use needed information, whereas much of the special-methods work still taught in our teacher-training institutions deals only with the presentation, by the teacher to the child, of traditional courses of study material.

This volume ought also to find an extensive use in Teachers' Reading Circles, as, by reason of its simple style, its logical organization, and its many practical applications to classroom situations, it is especially well calculated to stimulate teachers in service to new thinking along the lines here presented, and tend in consequence to develop a more intelligent classroom procedure.

Ellwood P. Cubberley

PREFACE

This book has been written from a conviction that the study period is as important a factor in the child's education as the recitation period, and that it is therefore quite as much the business of the recitation to prepare for the subsequent study as it is for the study period to prepare for the subsequent recitation.

There is nothing unique in the writer's insistence upon the importance of having pupils learn how to study. As numerous quotations appearing in the book show, the best-known modern educators have often emphasized its value and deplored the lack of general improvement. Some books already published deal with phases of the problem in a very helpful way, especially in defining what real study should mean, and in presenting plans for supervising study periods. The thing which still seems to be needed is a recognition that but little general improvement in study is possible so long as it is considered merely as a problem apart from the recitation. The traditional assumption that the chief and almost exclusive concern of the recitation is with material previously assigned for study has been responsible for establishing practices in conducting the recitation that still persist very generally, and that handicap improvement in study. For example, a complaint often heard regarding most

pupils is that their conception of study is limited chiefly to memorizing. But that style of study was the kind demanded by the schools of a generation or two ago. In the meantime our conceptions have changed both regarding teaching and the meaning of study without sufficient general revision of procedure to establish correspondingly new methods of study. The modern belief that growth in independent self-direction and skill in study should be emphasized as among the most important aims of the school calls for a critical consideration of all practices that influence such attainment.

In attempting such a consideration the writer has included in the first chapter an enumeration of factors that influence study, with detailed discussion of the more general conditions that have vital bearing on its improvement. The second, third, and fourth chapters deal with those essentials to good study for which the recitation period is primarily responsible. In the remaining chapters are taken up the special phases belonging largely or wholly to the study period itself. In the upper grades and high school these are frequently directed by some teacher other than the one conducting the recitation.

It is recognized that the value of a book in which is undertaken such a task as this will depend upon how well it connects with conditions as they actually exist. With this in mind, the writer has made liberal use of illustrative material drawn from the actual classroom

use, under ordinary conditions, of various features of organization and practice which have been found effective in bringing about better methods and results in study. Not only may some of the most common present difficulties be relieved by helping pupils toward an intelligent, self-reliant use of textbooks, instead of an inane servility to them, but at the same time the way is also being best prepared for progress in all phases of educational practice. Experience shows that a safe and successful transition to the project method of school instruction is dependent upon the facility developed in pupils for handling effectively their independent undertakings and investigations. This book is put forth in the earnest hope that it may prove helpful in making such a transition to the wider use of all practices that call forth greater initiative and responsibility on the part of pupils.

FRANK W. THOMAS

FRESNO, CALIFORNIA

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TRAINING FOR EFFECTIVE STUDY

CHAPTER I

THE MEANING, IMPORTANCE, AND CONDITIONS OF STUDY

The importance of having children acquire the power of effective study has often been emphasized. Proficiency in this respect not only ensures their successful progress in school, but increases in value after school days are past. There is nothing more essential to the best citizenship than the ability to investigate intelligently and reach an independent conclusion on public questions. Especially now in the reconstruction period following the war, when former facts and principles are being revised or discarded, the thing of greatest permanent value is the power to master new principles as they arise and grasp the new facts necessary to the readjustments demanded. As Bagley has said, "To teach a child to study effectively is to do the most valuable thing that could be done to help him adjust himself to any environment of modern civilized life into which he may be thrown."

No general improvement. In spite of frequent complaints regarding the failure of pupils to learn how to

study, and the occasional examples of good work in the right direction to be found in the best schools, there has been very little general improvement. In 1885 G. Stanley Hall declared: "At least three fourths of all the time spent by a boy of twelve in trying to learn a hard lesson out of a book is time thrown away. Perhaps one fourth of the time is devoted to more or less desperate and conscientious effort, but the large remaining portion is dwindled away in thinking of the last game of ball or longing for the next game of tag." In 1905 Bagley said: "This phase of schoolroom activity or inactivity is beyond doubt responsible for much more than one half of the serious waste of time that our American system involves. The time spent by the average child in 'preparing lessons' is very largely time thrown away." In 1909 F. M. McMurry, in commenting upon the pupils' lack of ability to study as revealed in an investigation conducted by Earhart, asserted: "It is, perhaps, unnecessary to collect proofs that pupils do not learn how to study, because teachers admit the fact very generally. Parents who supervise their children's studies, or who otherwise know about their habits of work, observe the same fact with sorrow." In 1917 Strayer and Norsworthy declared: "Many teachers have taught subjects, but not how to study subjects. The latter is more important." These comments, extending over a period of thirty-two years, and expressing the judgment of such well-known educators, indicate that there is still a general need for

revision of our aims and practices in the schoolroom before satisfactory progress can be made in curing this long-standing weakness.

Waste must stop. The increasingly insistent demand that waste be eliminated and that school practices conform to efficiency standards means that this much-criticized condition will not continue to be tolerated. Even worse than the mere loss of valuable time is the fact that one of the most important aims which education in a free nation can have has largely failed of attainment. In the present reappraisal of educational values, careful studies are being made to determine just what training and equipment our boys and girls most need in order to meet successfully the responsibilities of a new era, and there is a corresponding determination to reshape the work of the schools toward these objectives regardless of traditional practices. In this movement a need so universally recognized as that for better training in the art of study must receive increasing attention.

What skill in study includes. Before discussing how the teacher is to assist pupils in acquiring this art, it is necessary to define in a general way what is meant by skill in studying. First of all it signifies the ability to direct one's mental energies effectively in carrying through to successful completion some reasonable undertaking or assignment. The task may involve memorizing, drill, and the mastery of mechanical processes; it may involve searching out needed infor-

mation and putting it into usable form; or it may consist in concentrating thought upon the solution of problems — either the direct practical problems incidental to some project, or the more academic ones arising from history, geography, mathematics, or science. In any case the mental attitude must be alert, aggressive, and active, bent upon attaining definite results. Real skill in study means the power of effective, independent self-direction.

The difference between skill in study and its opposite is plainly apparent in the pupil's use of a textbook. Indiscriminate memorizing, mechanical and inattentive reading of lessons over and over, inability to distinguish between important and unimportant material, passive acceptance of what the book *seems* to say, however ridiculous the interpretation may be — in short, an attitude toward the textbook of indifference, helplessness, or servile, indiscriminating acquiescence — these are the opposite of good studying. Effective study, on the other hand, regards the textbook merely as a means to an end, as containing some material of major importance and other of minor importance. It assumes that the author had an intelligent purpose back of his sentences, and will not rest content until a meaning has been wrested from them consistent with that purpose. It proceeds to "husk out" the significant material, and to ignore what does not contribute to the purpose in hand. Above all it keeps a critical attitude throughout, testing and checking

every principle by the individual's experience and reason, as master and not slave to the text.

Not an impossible standard. Although there is a wide divergence between this standard and the proficiency, or lack of it, shown during the study period in most schoolrooms, it is not an impossible one to attain. Indeed, there are schools in which skill in study is made the chief aim and in which the pupils approximate the proficiency suggested in the preceding paragraph. In fact there are to be found in every school pupils who exhibit this independence, skill, and persistence in searching out information and mastering the difficulties connected with some special field of investigation in which they have an absorbing interest. The subjects of study are likely to be aeroplanes, submarines, radio-telegraphy, or something else not immediately a part of their school-work, and still less closely connected with using ordinary textbooks. But it suggests the possibilities dependent on making conditions favorable to independent study, rather than opposed as they now regularly are.

Conditions necessary for good study. Apart from the general conditions which influence study, there are four essentials which must be observed in order to ensure any general success in guiding pupils toward the acquisition of skill in this line. Successful study is directly dependent upon the following conditions:

1. *The pupil must have a clear idea of what is to be accomplished in his work.* There can be no real or active

study, either in school or out, unless one has in mind a definite question or problem to which an answer is sought or a definite attainment which is to be acquired. Mere "going over" an assigned number of pages tends to defeat rather than promote this requirement.

2. *There must be a sufficient motive or reason for the study.* Self-activity springs only from interest. Without it work becomes drudgery, unproductive of any good results in school, and conducive to permanent distaste for all the school represents.

3. *The methods of study must be effective if the best results are to be accomplished.* Clumsy methods are discouraging, cause unnecessary work, and often fail completely of results. Methods vary with the type of work to be done, and a pupil should distinguish between the way to attack a problem-solving task, and the way to memorize a drill exercise.

4. *There must be sustained effort until results are secured.* Pupils may begin well, but soon their "wits go wool-gathering," and they sit facing their book, but with thoughts far away. By making conditions favorable to concentration and continuous effort much improvement is possible.

In most cases the thing that will cause improvement in any one of these conditions will help also in another or possibly all. For example, good methods of study are favorable to persistence in study, as is also a vigorous motive. But the weakness of any pupil or class

will be due chiefly to shortcomings in some one of these essentials, and for that reason a separate chapter is given to each. Such a plan seems the best one for helping the teacher diagnose the pupil's difficulties, locate the particular phase of study essentials which needs strengthening, and apply the remedy which most directly touches the source of trouble.

The textbook system of instruction. One great fact in our school system that furnishes both the necessity for proficiency in studying and the opportunity for acquiring it is the American plan of textbook instruction. This system itself, rather than our method of teaching, has favored the development of such ability in independent study as is to be found among those who have attended our public schools. For the pupil's essential problem is to find what he wants from the printed pages, just as he will often need to do in later life. Moreover, with the prevalence of supplementary texts, he frequently finds conflicting authorities and has the opportunity to make independent judgments as to their comparative reliability. We used frequently to hear the oral-instruction system of Germany praised in contrast with our own. But the results of having pupils receive unquestioningly the dictated opinions of a teacher, with no opportunity of taking an independent or critical attitude on their own part, appeared during the World War in the tragedy of a great nation accepting without question any word, however wild or distorted, that fell from the lips of

"authority." By contrast, the critical yet reasonable attitude of the American public not only gave evidence of the fundamental soundness of our system, but pointed the direction in which further progress should lie.

Textbook study and outside study. Modern educational practice is tending more and more toward the project type of work, with its incidental problems as a basis for study. Consequently somewhat less use is made of the textbook and the use made is more intelligent. This tendency promises much of value in the way of making school-work vital and significant to the pupils. The study involved in carrying through an independent project usually has sufficient motive supplied by the project itself. The other three conditions to successful study are also apt to be more easily fulfilled when a problem-project is whole-heartedly undertaken by a pupil or group of pupils. In regard to material for study, the effect of this is not to supersede the textbook, but to require better methods of studying and using it. Even the most thoroughgoing "project curriculum" involves more or less extended use of textbooks or reference books as sources of basic, supplementary, or corroborative material.

Upon the skill shown in selecting and acquiring the needed facts from these sources depends largely the success of each undertaking. Wherever the project plan has proved disappointing, it has almost invariably been due to the children's inability to do intelligently

the incidental reading and study involved. So, both as a remedy for present needs and as the basis for extending successfully the use of the project method of vitalizing school-work, our first task is to develop greater power and facility in the use of textbooks. Consequently the aim in this book has been first of all to discuss means of helping pupils attain an intelligent mastery over the textbook, and incidentally to suggest ways of applying and extending this power in the investigation of any problems growing out of their interests.

Practices unfavorable to improved study habits. Although the special conditions controlling effective study are reserved for separate treatment in later chapters, there are certain general conditions unfavorable to study that are occasioned by common practices in the schoolroom. A just emphasis upon the importance of study, such as is unanimously voiced by our leading educators, demands that these practices be subjected to a critical scrutiny, with a view to determining whether they cannot be modified or even abolished without undue loss to the work of the school. Certainly nothing should be allowed to interfere with accomplishing that aim. At least three of these deserve treatment here, not only because they all have vital influence in discouraging proper study, but also because there is ample trustworthy data for condemning them, and their correction is largely or entirely within the power of the individual teacher.

1. Misplaced emphasis in recitation

Teacher "too active" in recitation. One practice that is unfavorable to developing independence in study is the tendency on the part of most teachers either to do too much of the talking, or to dominate too completely the character of the recitation. Kingsley humorously said, "Children once used to learn a lesson and say it to the teacher, whereas nowadays the teacher learns the lesson and says it to the children." In our worthy endeavor to get away from the vicious custom once followed of requiring pupils to repeat *verbatim* the words studied, we have gone to the opposite extreme of apparently expecting that nothing will be definitely mastered during the study period. Consequently almost the entire recitation period is spent in "going over" what had been assigned for study. The teacher, from her clear knowledge of the material under discussion, has decided what should be said about it. Accordingly the pupil's halting statements as to what he learned during the study period merely furnish a starting-place for a more or less extended cross-examination until that pupil or some other pupil is cornered into saying what the teacher wishes said about the topic.

The process frequently consumes much time, but her success in getting certain words said affords the teacher a pleasurable feeling of triumph. If, however, she does not succeed, and is compelled to say herself

the words she wishes said, she is correspondingly humiliated, and in her annoyance may say other things not originally planned. Pupils soon discover that a smattering familiarity with the assigned work and skill in divining the teacher's wishes stand them in better stead than attempts to make definite, independent judgments regarding the material studied. The natural result is the "Is that what you want?" type of recitation, instead of initiative and independence. Other teachers, in their effort to "enrich" the recitation, offer a profusion of additional information, comments, and illustrations. The pupils usually find this entertaining, and much of it may have real value, but there is always danger that the time consumed could be better used in other activity. The standard by which the value of recitation procedure must be judged does not consist in the number of facts presented, but in the increased power developed in the pupils.

A recitation period of generous length, along with its splendid possibilities for good, is especially liable to this danger of "talking to death" the possibilities for improved study. Hall-Quest, in his helpful book for high-school teachers on *Supervised Study*, gives many instances of the benefits resulting from shortening the actual time given to reciting, and using the remainder of the period for improving the methods of study. In the elementary school it is very doubtful if more than twenty minutes should regularly be allowed for strictly recitation work. How any remaining time

available should be used for the sake of better study will be discussed later. As McMurry puts it, "The art of teaching will then consist not only in ability to present ideas, but also in ability to keep still . . . not the least of [the teacher's] rewards is the fact that she is allowed to rest her voice." The ill effects of "over-reciting" the pupils may be estimated from the contrasting gain under even the bad opposite condition where the recitation time is inadequate for the best teaching. This is to be found in rural schools, and overcrowded city schoolrooms.

Children in rural schools. It is a matter of common experience and comment that pupils who have completed the grades in rural schools show marked superiority in high school over their classmates from town or city schools in the matter of independent study. Owing to the number of grades taught by a rural teacher, each class spends a very small part of the day in recitation, and a proportionately long time at "study." In the primary grades the pupils are unable, of course, to use this time for study, and the hours they sit daily, staring about and waiting for the brief visits of the teacher, constitute one of the most lamentable facts in the rural-school problem. Even in the upper grades there is a great deal of unused and misused time during the periods allotted to study, but most of the pupils, in sheer self-defense against the ennui of prolonged idleness, work out some method of study.

These haphazard methods are usually memoriter in

character, often cumbrous and unnecessarily laborious in use, and almost never as direct or effective as those that could and should be taught. But, by way of compensation, persistence and independence are acquired, since the teacher is busy elsewhere and cannot be appealed to for help at every difficulty encountered, and it is these virtues, rather than especial skill in study, which enable the rural pupil, in spite of poor teaching and other handicaps, to make a better showing than the average city pupil when they face together the task of mastering a new and difficult high-school subject.

Large classes in cities. The fact that pupils lose mental strength and independence from being "recited" too much, and that this principle holds equally with city or country pupils, is indicated by the following statement and statistics furnished by A. W. Plummer, Chairman of the Arithmetic Committee of the Los Angeles Schools, and published in the *Sierra Educational News* for September, 1919:

From an arithmetic test given by Mr. Lane, Director of Research of the Los Angeles city schools, I found that 16 rooms of 40 or more pupils averaged 62 *above* city grade; 98 rooms of less than 40 pupils averaged 14 *below* city grade; also, that 62 rooms of double classes (B and A) averaged .06 3-7 above city grade, and 48 rooms of single classes (either B or A) averaged only .00 1-6 above city grade. This latter statement indicates that *pupils* have a better chance in rooms of two classes.

From a letter recently received from Mr. S. A. Courtis, formerly Superintendent of Educational Research, Detroit, I quote the following: "I have made several tabulations of effect of size of class upon scores of standard tests, both in

arithmetic and in other subjects, and in both Boston and Detroit . . . the advantage, if any, being on the side of *larger* classes; that is, classes of 55 on the average made rather better scores than classes of 45, and these better than 35 and so on."

Jessup and Coffman state, in their volume on *The Supervision of Arithmetic*, that Dr. J. M. Rice gave a test to 6000 grammar-grade children, distributed through eighteen school buildings in seven cities.

Dr. Rice said: "The number of pupils per class was larger in the highest six schools than it was in the schools of City VI, and the classes were exceptionally small in the school that stands at the lower end."

Mr. Plummer's comment on these facts was as follows:

From years of experience in the classroom and as supervising principal, I have been convinced, for a long time, that large classes, 40 to 48 or 50, give the pupils a better chance to gather intellectual strength than do classes of from 30 to 40 pupils.

Children are intellectual beings and after being directed should be given a chance to grow, which must be by their undisturbed efforts. The teacher should keep out of the child's mental road, a part of the time, at least.

From the foregoing it is evident that part of the recitation activity usually engaged in may defeat some of the most important purposes of education. No one questions the fact that pupils in rural schools or overcrowded city rooms lose much that the school should give, and it is equally unquestionable that other pupils would gain much in self-reliance and power, without corresponding loss of their present advantages, if only their teachers would resist the temptation in recitation time either to push discussions to unnecessary length

or to dominate too completely the details of the recitation. The teacher who is willing to assume less prominence and to endeavor instead to stimulate, by sympathetic encouragement, greater initiative and responsibility on the part of the class for its own discussion, is rewarded in more ways than one. In the first place there are easier nerves through the diminution of fruitless questions. But best of all is the satisfaction of seeing develop in the pupils through this deliberate plan a resourcefulness and power greater than that unintentionally developed in those schools where the stress of multiplied duties makes it impossible for the teacher to do too much either of right or wrong things during recitation periods.

2. Wrong type of examinations

The function of tests and examinations. A second factor which discourages improvement in the power to study, and which is also easily subject to correction, is the character of the usual examination. Intelligent teaching demands that there be adequate testing of results, and this testing must often take the form of some kind of examination. The kind of test which they expect to meet at the end of any unit of work has a very strong influence upon the pupils in determining the character of work they will do in conscious or unconscious preparation for it. It is equally true, though not so generally recognized, that the teacher is also strongly influenced in directing the efforts of her pu-

pils, and especially in the relative emphasis given to any type of work, by the kind of test she expects to give or to have given to them.

For example, the chief value accruing from the increased use of standardized tests and measurements has been the effect in causing teachers to make a more intelligent distribution of the emphasis due the various phases of their work, and thus to correct hitherto unsuspected weaknesses in their teaching. For that reason standardized tests should be used in all lines of work in which they have been scientifically worked out and their reliability proved. Unfortunately, however, their field is limited as yet mainly to the mechanical phases of school-work, and there seems no immediate prospect of their successful application to such subjects as geography, history, literature, and most of the high-school subjects. The necessity of using some other kind of test in these subjects, and the potent influence which this test has in determining the character both of the teaching and learning, combine to make it highly essential that this be the right sort of test. Consequently, if an examination is given, it should be one which really tests progress in the qualities and results which the school should most encourage, and one which influences the activities of all concerned toward the better development of power, skill, and resourcefulness on the part of the pupils.

Most examinations are merely memory tests. The examinations usually given, and the manner of giving

them, fail to meet these requirements. For the most part they are confessedly tests of memory, preceded by strict injunctions that all books, notes, and other material that might assist in reproducing the finished products of the past are to be put securely away. The effect, both at the time of the examination and before, is to exalt mere memorizing at the expense of power and independent thought. A certain amount of memorizing is, of course, a necessary element of good study, but it should be strictly subordinate to rational organization and clear comprehension. The influence of the memory type of examination is most harmful to immature pupils who have not yet developed good standards or methods of study. Various sentences in their textbooks may frequently be found marked for memorization, but very rarely indeed are these selected as a result of independent thought or because they have been found interesting and stimulating. Their selection is due instead to hints dropped by the teacher that these particular facts are likely to be needed when examination day comes around, for most teachers who use this kind of test, realizing that the pupils will not remember everything touched upon, try to influence them toward remembering the things which have been vaguely chosen as the material for the examination. It is readily apparent how subversive this arrangement is of everything resembling independent, self-directed study.

Open-book examinations. The problem then of

measuring results in those fields of school-work not yet adequately covered by standardized tests is to select such plans of examination as will not emphasize memorizing to the detriment of more important considerations. The writer is convinced, after extended experiment, that this can best be attained in the upper grades and high school by giving most examinations, and certainly the most important examinations, with textbooks freely open for such use as the pupils care to make of them. This immediately compels the elimination of those questions that are merely tests of memory, so that they are no longer allowed to usurp undue prominence or to exert distorting influence upon the aims and methods of teaching and study. Any need for testing the pupils' retention of important facts can best be satisfied by a frank and avowed test for that purpose, and can usually be given most profitably in the earlier part of any unit of work, when there is most need for assured mastery of such facts as a basis for comprehending larger problems of the subject, instead of at the end when their immediate usefulness is nearly over.

By such an arrangement the main examinations can be made to test the pupils' real progress and working ability with such tools accessible as he would have in solving the problems of later life. We do not rate a lawyer's standing by the number of statutes he can rattle off from memory, but rather by his skill in finding just what he needs and in applying these citations

to the case in point. Indeed, we should justly feel suspicious as to the competence of a physician or an engineer who presumed to settle important questions from memory, and we reserve our confidence for those instead who show ready familiarity with the best sources of information and thoughtful precision in the selection and use of needed data. At the same time it would, of course, be a condemning weakness in either a pupil or a professional man to be under the necessity of looking up a very large proportion of the information needed, but the mere fact that it is accessible removes disturbing factors that tend to prevent clear thinking. Just as a lawyer, about to appear in an important trial, if warned by some eccentric judge that no law books would be allowed in the court-room, in his nervous apprehension lest he forget some needed scrap of all the possible citations he had tried to memorize, would surely make a far less creditable showing in every way than if his preparation had been under circumstances favorable to clear thinking; so the pupil, facing the trial of examination day, can hardly be expected to use better methods of study and preparation, or do clearer thinking in his test, if the conditions are equally unfavorable.

Such examinations not easy. When the use of open-book examinations is suggested to teachers, their first thought is that pupils would be able to answer practically any question asked. Repeated experiments have shown that this is far from true. In our trials of

this plan practically every teacher at first prepared questions entirely too difficult. In fact there are hardly any circumstances under which the weakness of an incompetent pupil is so apparent as when he is staring helplessly at pages which refuse to do his thinking for him. One of the first results of the plan is always the revelation that most pupils who do poor work fail because of inability to get from the textbook anything except, perhaps, obvious scraps for memorizing. Consequently both teachers and pupils, in preparation for a better showing next time, begin consciously to try ways of using books to better advantage. Pupils will be found practicing on the use of the index, and writing condensed summaries. The writer has seen these latter worked out voluntarily to a degree that constituted almost ideal exercises in textbook study, but involving more effort than any teacher would think of requesting in addition to regular assignments.

There are other good results from the open-book examination, such as removing the temptation to crib and cheat, and lessening the nerve-shaking dread, most of which is apprehension that some tricky slip of memory will wreck a train of thought and defeat prolonged preparation. It meets the objections of those who, in their protest against the harmful features of the memory type of examination, would go to the extreme of giving none at all. But its sufficient justification is in its positive value as really testing and stimulating right methods of study.

Tests two important results of study. At least two important results of study and of school-work in general can be tested by an examination of this character which are not usually now being tested in any adequate way. These are, first, the pupil's ability to carry out a connected line of thinking on any question with only such slight references to books as any thoughtful person would be expected to make under such circumstances, and, second, the pupil's skill and judgment in selecting quickly from an extended range of material only those facts needed for some special purpose. For example, when a teacher gave to a class in history the following question, "Tell why you would, or would not, have voted for Henry Clay for President," some pupils wrote their answers with no reference whatever to the textbook; others merely gave a hasty glance or two to verify their impression as to his attitude on certain policies; while those who spent more than two minutes thumbing over the book in search of a substitute for independent thought were unable to write any satisfactory answer. The test was plainly one of thought and not of memory.

In the same examination, another question was, "What issues were settled by each of the compromise bills presented by Clay?" The time limit allowed no leisure for clumsy turning of pages back and forth; there was just convenient time for demonstrating skill in locating, selecting, and summarizing facts. Weakness in any of these activities was apparent in the

incomplete and unsatisfactory answer. This plan of thus determining definitely the precise points in which the pupil is weak is of utmost value in its influence upon later methods, for the chief justification of any method of testing must be in its reaction upon the work both of teacher and pupils.

Miss Mabel E. Simpson, who, in collaboration with Mr. Hall-Quest, worked out very successfully a plan covering some phases of supervised study as described in her helpful book, *Supervised Study in History*, came to recognize that the examination should test improvement along the lines mentioned above. Accordingly in her specimen list of test questions, or "Examination Lesson" as she terms it, she includes the following:

> 6. Consult one of the books upon the table; find all the information you can upon the following topic: "The Printing Press." Read this information carefully, list the pages read, and then contrast the present system of printing with that employed by Franklin.
>
> 7. Using the information gained in reading the references found upon "The Printing Press," apply the old adage, "Necessity is the mother of invention," to the great development made in the methods of printing.

As the author explains, the purpose of the first question quoted is to measure the pupil's ability to make intelligent use of a book in locating and applying information; and that of the second to measure his ability to reason accurately from given data. Before this and other lines of work for improving power to study were introduced, the limitations of the pupils in

her history classes are described in these words: "It soon became evident that my pupils had no ability to do independent study. Their only idea of study was to memorize the facts contained in the text. It never seemed to occur to them to question statements or investigate points which were not clear." Most teachers will recognize this state of affairs as something by no means peculiar to that school. It is surely time that a general effort be made to influence pupils toward a different conception of study by having our examinations call for correspondingly different and more worthy attainments.

3. "Lock-step" classification and promotion

Faults in system of class instruction. The third general practice that discourages independence in study is not so easily remedied. Our system of class instruction played a valuable part in the extension of free public schools at a time when there was apparently no other way of educating large groups of children on the very meager financial support that the people were willing to contribute in taxes. Its economy has remained a powerful argument in favor of the system even to the present time, and in most of the plans for improved administration in school affairs it has been assumed that each teacher will always have in her room large groups of pupils, all reciting or studying the same things at the same time and at the same rate. This handling of pupils in mass formations enables

boards of education to make a more economical "cost per pupil" showing to the taxpayers than any other system that has yet been tried on any large scale in the public schools. But it has many fundamental weaknesses, some of them so closely connected with unsatisfactory study that any attempt to improve the latter must recognize these faults of the system, and attempt to neutralize them by compensating adjustments in individual assignments if circumstances do not permit more radical changes.

It assumes, for example, that children of a given age are so nearly uniform in ability and interests that any chance group of them assembled into a schoolroom will make the same rate of progress through the same work with so nearly uniform success that all or nearly all will be ready for promotion on the same day. Many writers have pointed out the fallacy of this assumption, among them Dr. Burk, who bitterly sets forth what he calls "an indictment of the class system of instruction by which all pupils in our schools, indiscriminately, and without regard to differences of mentality, temperament, inborn talents, or tastes, health, absences, etc., are marshaled through the grades by platoons in tight lock-step." There is no doubt that this uniformity of treatment is responsible for much retardation, not only of slow pupils who are not quite able to keep up with the class and so must drop back a whole grade or half-grade and try to go equally fast with the next group, but also of the stronger pupils

who could go much more rapidly, and yet are hardly able to skip a whole grade. The exasperation that comes from being held in a crowd that either drags one off his feet by compelling him to move too fast or frets him with its dull slowness, incites pupils to leave school or increases disciplinary difficulties. Still other shortcomings might be charged against the system, but this discussion must be limited to those phases that handicap improvement in study.

Uniformity not stimulating to study. The practice of asking all the pupils in a class to do the same work in the same time, fair and impartial as it may seem, in reality is very far from being fair, and certainly is not conducive to the best study on the part of all the pupils. Wherever the silent-reading tests have been given to determine the rate at which pupils read to gather thought, and their accuracy in interpreting what they read, wide discrepancies have regularly been found among the pupils of the same room and grade. For example, it is not unusual to find that the best pupil in a room skims along six times as fast as the poorest pupil, and at the same time is more accurate in getting the thought. Occasionally the best fourth of all the pupils in the same grade will be found to read three times as rapidly as the poorest fourth of their classmates.

In the face of these inequalities of power, it is obviously neither fair to the slow pupils nor stimulating to the quick ones to give all one uniform assignment.

Vigorous, effective study is dependent on interest, and interest is deadened equally by a task hopelessly beyond one's ability or one that presents insufficient difficulty to challenge one's resources. Even the pupils of average ability, for whose capacities such assignments are intended, are hardly stimulated to put forth painstaking effort when they realize that the same point will be more glibly recited on by the bright pupils, who will have prepared for it without tiresome effort and with leisure to spare. The attempt to fit wholesale requirements, gauged for so-called average pupils, to the widely varying capacities of any class, is responsible for most of the discouragements to improved study that inhere in the class system of instruction.

Experimental attempts at radical change. Various educators, realizing these defects, have tried to demonstrate the practicability of reorganizing the schools upon the basis of individual instruction. Superintendent Search, while in charge of the Pueblo schools, gave wide publicity to the plan which he introduced there. Since then accounts of various schools using similar systems have occasionally appeared in print. Most of these schools have been private schools, and with a limited number of pupils. In spite of the claims made in its favor as a cure for the admittedly wasteful faults of the class system of teaching, the scheme of transforming the school organization to such a basis has never met wide favor. One reason for this has been the general conviction that the necessity of assigning

smaller groups to each teacher would immediately require such additions to the teaching force as to entail prohibitive expense. A second, and even more vital, reason has been a somewhat vague, but persistent, feeling among school authorities that pupils receiving strictly individual instruction missed certain social values that the usual class receives from its group recitation. There is no question that a mastery of facts and processes can be more quickly attained by separate instruction for each pupil, but such a plan tends almost inevitably toward reducing the study of any subject to the mere acquisition of its facts and processes, at the sacrifice of the opportunities it affords for socialized activity.

Socialized recitation demands group participation. With the present emphatic tendency in education toward the socialized recitation and the socialized curriculum, the belief is becoming more definitely expressed that in many school subjects the facts themselves are not of so much importance as the occasion and material furnished in the acquisition and use of these facts for socialized, coöperative group participation. We frequently hear that it is the duty of the school to give training *in*, rather than facts *about*, citizenship, and in the social sciences and correlating phases of other subjects, individual instruction that omitted the interplay of class participation would be likely to miss some of the best educative values which those subjects are capable of yielding. From the

standpoint of vital stimulation it is somewhat as if an individual were attempting to play alone a game of tennis or baseball.

Development of compromise adjustments. Whatever may be the merits in the case for or against the substitution of individual for class instruction, our present discussion is merely concerned with the fact that the plan is making no general headway, and that, for the present at least, some other means must be found for removing the obstacles to improved study which arise from the objectionable features of mass teaching. For the special cases of pupils whose work in certain subjects varies so widely from grade standards as to prevent them temporarily from working profitably with any regular class, modern school systems have "Ungraded Rooms," or "Adjustment Rooms," in which, by a combination of special grouping and individual teaching, the pupils are prepared to return to some regular grade. But for the schools in which such adjustment opportunities are not available, and for all schools in which troublesome variations among pupils' abilities and attainments inevitably remain, certain methods of adjusting the work to the pupils' capacities have been found satisfactory, and may easily be adapted to her own needs by any classroom teacher. These are the regrouping of pupils into fast and slow divisions, the elastic assignment, and the individual assignment.

Elastic provisions for difference in ability. The plan

of separating the pupils within a grade into groups according to capabilities has produced very satisfactory results in the way of interest and progress. It usually takes the form of triple groups, one each for fast, slow, and average pupils. It frequently happens, especially in the lower grades, that the fast group can, without skipping or omissions, do one and one half year's work in a single year. The medium group does its year's work on schedule time, but without dragging along slow pupils or being dazzled and discouraged by pupils too bright for the rest of the group. The slow group may require a year and a half to complete the grade, but they are not merely dazed auditors while stronger pupils recite; they feel the interest arising from assignments within their ability, and are not repeating. Teachers who try the plan regularly find that, from their own standpoint, the extra number of recitations is more than compensated by the improved response of pupils, the greater uniformity of preparation, and the elimination of loss and friction due to the constraint of trying to hold wide diversities of ability to a single average standard. In the upper grades the difference in work done by the various groups may consist not in varying rates of progress, but in the character and content of the work itself. In that case it is usually better to allow the pupils to do their own grouping by means of a minimum, an average, and a maximum assignment. All pupils must do the minimum, which is adjusted to the ability of the slow pu-

pils; those who are able may add the interesting material of the average; while the strongest may accept the challenge to their powers of the still more attractive maximum material.

Thus every pupil may show his mettle, while the weakest must concentrate on something within his range and gets the minimum essentials involved in the lesson. Under the direction of a competent teacher the stimulation of interest by this plan, and the effort put forth by every pupil to be able to report himself at the beginning of each recitation as having gone beyond the minimum, constitute some of the most admirable class-work which the writer has ever seen. This leads naturally to assigning work individually to various pupils, adapted to the particular difficulty or the particular strength of each. Both the elastic assignment and the individual assignment will be discussed in later chapters in relation to their special applications in promoting study.

Chapter summary. Although it is generally conceded that teaching pupils how to study should be one of the foremost purposes of the school, there has been, during the past generation, very little general improvement in the much-criticized deficiencies along that line. Modern needs emphasize the demand for improvement and for reshaping school practices toward securing it. Progress in study has as its goal independent self-direction, and is dependent for success upon four special conditions; namely, knowing what to do,

having a motive for the effort, knowing how to work effectively and economically, and being able to maintain attention and effort until results are secured.

Apart from these direct factors governing study, there are three general conditions which handicap study, and which will continue to make the task of improvement doubly hard, unless remedied. These are the tendency to overdo "recitation activity" on the part of the teacher; the vicious custom of making memory questions the chief feature in tests and examinations; and the wholesale requirements of class instruction.

Fortunately the means of neutralizing these handicaps are within the reach of most teachers, and a just regard for the progress of pupils in attaining greater skill and better ideals of study demand that obvious readjustments be made toward that end.

QUESTIONS FOR STUDY

1. In your own experience as a student can you recall a point at which there was a rather marked change in your conception of study? To what extent was there a corresponding improvement in the effectiveness of your study? What influences were responsible for this change, and how far do you think the same principles might be utilized with any pupils?
2. "One of the surest indices of a teacher's ability is the diligence of the study class. . . . The prime

test of a teacher is not the manner in which he conducts a recitation, but the growth that his pupils make in ability to work efficiently without supervision." (Bagley, *Classroom Management*, p. 206.)

Explain and justify the two statements quoted. What do you think is implied as to the functions and responsibilities of the recitation period?

3. Make a list of five questions which you think would be suitable for an open-book examination in geography. What difficulties did you encounter in preparing the questions? In what ways did the task suggest new aims and points of emphasis in teaching? If these questions were actually given to a class, what would be the probable effect upon their method of studying the subject in preparation for another similar examination?
4. Give three reasons why the work of the study period may be more valuable for the pupils than that of the recitation.
5. Suggest ways in which some phases of individual instruction might be used in the ordinary classroom as a special stimulant to independent study.
6. Write out an "elastic" assignment in civics, providing a minimum that would not discourage the weaker pupils, and at the same time affording sufficient opportunity for vigorous study by the strongest ones.

7. In the case of the pupils you have most recently observed, what do you consider the chief reasons for weaknesses in study?
8. Many teachers hesitate to introduce project work extensively because their pupils seem unable to carry out the individual investigations necessary to a worth-while undertaking. Enumerate various ways in which improvement in standards and methods of study would lead toward more general and more successful use of the project type of school-work.
9. It is not only true that the successful carrying out of a project by a pupil or group of pupils is dependent largely upon power of self-directed study, but such work, in return, may be made the means of still further developing this power. Show how a well-chosen project may help to supply each of the four conditions named as essential to effective study.
10. Give some illustrations of the type of "home work" usually assigned for pupils in the eighth or ninth grades. To what extent do such assignments secure good results?
11. Some educators believe that no home study should be assigned below the second year of high school. Give arguments for and against such a plan.
12. Which would you rather have, a ready knowledge of the information contained in some text-

book, or the ability to locate and verify this and similar information when needed? Give at least three reasons for your preference.

13. Investigate the methods of work followed in some voluntary "study-club" or by some individual pursuing independent research outside of school. How does the effectiveness of this study compare with that done in the public schools as you know them? How could any good points noted be used in school?
14. A distinction is sometimes made between "study for learning" and "study for doing." What practices in regard to study have given rise to this distinction? Justify your answer.
15. In what ways may the increasing use of standardized educational tests help toward the improvement of study? Illustrate with some particular kind of test.
16. It is generally agreed that the teacher should assume much less prominence in conducting a recitation than has formerly been the case. Try to state some rules or principles for the recitation so as to avoid over-activity on the part of the teacher and yet ensure adequate guidance for the pupils.
17. What are the good as well as bad features of "cramming" as a type of study? To what extent and by what means should proficiency in swift, intensive study (as "cramming" sometimes

implies) be made a definite objective in study training?

18. In using the "group" system of class instruction there are always "fast" and "slow" groups in the lower grades, but in the upper grades the plan is frequently preferred of having the groups vary in the breadth and richness of material handled rather than in rate. Give arguments for and against the latter plan, and designate the approximate grade in which the change should occur, if at all.

SUGGESTED READINGS

Hall-Quest, A. L. *Supervised Study*, chap. II.
McMurry, Frank. *How to Study*, chap. XIV.
Bagley, W. C. *Craftsmanship in Teaching*, chap. VIII.
Simpson, Mabel E. *Supervised Study in History*, Preface and Editor's Introduction.

CHAPTER II

KNOWING WHAT IS TO BE STUDIED

The cause of much poor preparation. The most frequently heard explanation or excuse for failure to prepare lessons as expected, is, "I did n't know we had to do that." After making due allowance for the cases where such a plea is merely an excuse, the fact remains that the statement is far too often justifiable. Even the most conscientious teachers, in spite of their efforts to be clear and definite in making assignments, are sometimes called upon before the next recitation to settle disputes between pupils as to the precise things they were to do. These misconceptions as to what is to be done during the study period may be due to failure to understand the words of the assignment or text, to misinterpretation of directions, or to lack of sufficient preparatory knowledge to enable the pupils to grasp intelligently the problems presented.

Difficulty with words. We have all been amused at the extracts from examination papers, such as are printed in the "humor columns," in which the comic element is due to a misconception of the meaning of a word. In fact, most teachers can furnish similar examples from their own experience. But, in the majority of cases, these misunderstood meanings, instead of appearing funny, are exasperating to the teacher

who can't understand how children get such queer ideas, and embarrassing as well as discouraging to the perplexed pupils. Beecher once said, "Words are merely convenient pegs upon which to hang ideas." Since a child's knowledge of words is gained largely from the context and circumstances under which he has heard and seen them used, as interpreted and colored by his own limited experience, it is not surprising that teachers frequently find startling misfits among the ideas and the pegs upon which they have been hung. So when one considers not only the totally unfamiliar words which abound on almost every advance page of the average textbook, but the even more treacherous half-familiar ones as well, the necessity becomes apparent for taking precautions against these dangers to safe progress during the study period.

In most cases it will hardly be advisable to make any extended study of these new words, but it is nevertheless real economy of time to pay at least enough attention to each of them to save the pupils from a wrong impression as to its meaning. When time and the material do permit careful word-study, there is no better way to provide both motivation for and application of it than in connection with its importance for problems immediately confronting the pupil. The goal, of course, in dealing with unfamiliar words is the establishment of the "dictionary habit" or "word conscience"; that is, a standard on the part of the pupils that makes them unwilling to pass a strange

word in their reading without some investigation as to its character and business there.

Misinterpretation of problems or directions. By far the greatest waste of time, and frequently of effort, arises from failure of the pupil to grasp clearly the exact nature of the task involved in the matter to be studied. If any teacher doubts this, a simple and obvious experiment will be found convincing. After making an ordinary assignment, ask various pupils to explain immediately just what they understand is to be done during the study period. The more definite they try to be, that is, the more in detail they attempt to state what steps they expect to take, the more will confusion be apparent. Fortunately, in most cases this misapprehension is not serious enough to prevent a tolerable preparation of the lesson, but rare indeed are the recitations in which there appears no evidence of such difficulties. In fact one frequently hears teachers declare that they would be astonished if all the pupils in a class were to make precisely the preparation they were all asked to make. Granting that the remark is partly humorous exaggeration, the very point of the humor depends upon the universality of the experience among teachers.

The causes of such misapprehension may be various. The attention of the pupils may not be alert for the assignment; they may fail to visualize vividly the necessary lines of activity involved, or the attention may linger upon one phase of the assignment at the

expense of the rest. In any event the remedy is the same. The pupils should be given the largest possible share in making their own assignment. Quite apart from the tremendous gain in interest that comes from having the pupils formulate their own problems, the advantage in clearness of comprehension is equally great. Ability to do this will not come at once, but can be developed. A very simple way to begin, and one which represents the very least that a teacher should do in making an assignment, is to have various pupils restate the problems or tasks of the assignment as they understand them. The time thus spent will bear rich returns considered merely from the standpoint of better comprehension of what is to be done, and consequently more intelligent preparation. It is a mistake to slight this because it seems unnecessary repetition and a waste of time. As Bagley says, "The natural result is that the teacher who does not teach in the assignment is forced to teach in the recitation." But effective teaching in the assignment depends upon getting the pupil to reveal wherein teaching is needed through his reaction to the assignment as given.

The right study attitude. The share which the pupils are to have in making the assignment should not end with their restating and discussing such questions and problems as the teacher has to propound. The goal of all training in study is self-direction. The form which this should take in teaching pupils the effective use of textbooks is well stated in the following

sentences from *How to Teach*, by Strayer and Norsworthy:

> They must learn that books are written in answer to questions. In order to thoroughly understand a book, students must seek to frame the questions which it answers.

When pupils once grasp this idea, their whole attitude toward finding what to do in study-time is transformed. As a step toward this, some such device as the following has frequently been used, and is surprisingly successful even as low as the third grade. Each pupil is asked to use his study-time in selecting and preparing questions about the lesson, such as he thinks would be fair to ask the rest of the class. As a result, the pupils, almost without exception, are able not only to answer their own questions, but an unusually large number of other questions. But the great value of this type of exercise lies deeper even than the improved preparation secured or the increased interest, some part of which is due to novelty. It causes the pupil to assume the correct attitude toward books as a source of information. This active attitude of seeking the questions for which the book supplies answers is immeasurably superior to the passive one which depends for guidance on the questions or directions of some one else.

Naturally, the early efforts of pupils in formulating their own questions for study will be crude. Their sense of relative values is faulty, and they may emphasize trifles at the expense of important material.

But, while recognizing the need of correcting this, let us remember that self-direction can be developed only by practice and trial, with diminishing domination from the teacher. Moreover, the rate of improvement in this respect is surprisingly rapid whenever the teacher is genuinely convinced that a pupil's progress in setting problems for himself is more important than prolonged study upon ready-made exercises set by another. As a matter of fact, in experimental classes it has usually been found that pupils of the lower grades, in spite of their immaturity, show quite as much readiness in devising worth-while problems for study as do upper-grade pupils, in whose case the first task is to break up the encrusted habits of passivity in regard to study.

Preventing assignments for which pupils are not prepared. If any further reason were needed for a preliminary discussion by the pupils of the work to be studied, it would be found in the third cause of misconceptions as to work assigned; namely, insufficient preparation on the part of pupils to enable them to grasp intelligently the problems presented. Problems and questions formulated by pupils are rarely those with which they are unprepared to cope. Even if the class has not yet been brought to the point where it can contribute much in making its own assignment, a preliminary discussion of the advance problems will at once reveal any unpreparedness to do profitable study. If this is due to some difficulty that cannot readily be

removed, it is possible to alter the assignment before an entire study period is wasted, failure and discouragement invited, and a wrong attitude toward study begun. On the other hand, the preparation needed by the pupils before being able to do efficient study on the advance assignment may be such that it can be accomplished in a short time. In that case it is the business of the preliminary view of the work to be studied to furnish that preparation.

In the schools in which the best results are now being attained, both as regards mastery of work and progress in study, the custom is to divide the recitation period into two nearly equal parts, the first being the "review" or backward look at the work already studied, and the latter half the forward look at the new assignment. If pupils were really prepared on the previous day to study properly, and are held to a business-like accounting for results, without painful and drawn-out efforts on the part of the teacher to have them say things they do not know, half of the usual recitation time will suffice for the backward-looking part of the period. If any less than the other half of the period is given toward ensuring a clear understanding of the new assignment, determining what is to be solved or summarized or memorized, selecting sources of information, forestalling difficulties by adequate preparation, and doing such other things as will leave the pathway to the next lesson only just difficult enough, the penalty for neglect will

probably be a lesson so ill-prepared next day that the entire recitation period will not suffice for eliciting satisfactory responses.

Teaching pupils to frame questions for study. A recognition of the major importance of independent study as an aim of school-work involves a further revision of emphasis and procedure during the recitation period. Strayer and Norsworthy, in a chapter previously quoted, say: "Many teachers have taught subjects, but not how to study subjects. The latter is more important." Other prominent educators state the fact even more emphatically. The general agreement that training in study is a more valuable use of time than hearing recitations calls for a new type of classroom technique. In high schools, where weakness in a pupil's study-power becomes quickly and often disastrously apparent, much attention has been paid to means of improving this general shortcoming. For the most part these consist of administrative devices for ensuring supervised study periods. But the time at which special effort should be directed toward promoting skill in study is in the elementary school. Not only does the task involve less difficulties in the way of overcoming wrong conceptions of study if persistently worked toward in the lower grades, but the added strength of the pupil who advances into the upper grades and high school with increasing efficiency in study justifies such emphasis at any reasonable cost.

Beginning in the primary grades. The foundation of a correct study attitude should be laid in the very first grade. As soon as the child can begin to read at all, his natural tendency is to "guess ahead" as he eagerly works through the sentences of his story. With only slight encouragement, he will tell what he hopes to find out; that is, frame in a crude way the questions for which the remainder of the story is to furnish the answers. This is the essence of the correct study attitude reduced to its simplest terms. As long as this remains natural with the pupil in his reading and study, he is safe from that lifeless stumbling over a meaningless succession of words which is fatal not only to oral reading, but to any study worthy of the name. Such a performance is not reading in any just sense, and a teacher is doing a child a wrong if she allows him to go on believing that he has really "read the lesson over."

Caution in primary grades. Since study, even in its simplest form, requires holding the attention alert and expectant, care should be taken not to fatigue small children. A short part of the recitation period should be used for the training in study, and in the first grade should not exceed ten minutes. Whether the things to be looked for are proposed by the pupils or by the teacher, make sure that they are entirely clear to all, and that this assignment immediately precedes the period of study. The time between recitations, for this grade, may be spent in occupational work connected with their lessons, but real study should not be called

for except during the brief periods mentioned, and while the teacher is present to control conditions and standards as well as guide the habits that are being formed. The important points to be remembered are that the pupils must know precisely what they are expected to do or to find out, and that they should earn the satisfaction then and there of accomplishing their ends, with the added pleasure of telling or demonstrating their success. Complete and successful preparation should be their standard and habit from the first. Quality is much more important than quantity in the study requirements of small children.

Broadening field of study problems. From the second and third grades the type of study may begin to include something more than the simple form of thought-getting which characterizes it in the first grade. One field to be added is that of the "outside" problem, arising in such work as nature-study, home geography, or handwork. The solution or verification needed in such cases will require reference to printed matter. It seems a very simple and easy thing to settle the questions connected with a "real" or "outside" problem by referring to the proper chart, book, or other authority. Children, however, do not find it so, and the complaint is frequently heard regarding upper-grade pupils that they are helpless in the matter of applying textbook facts to the real situations about them, even when the connection seems plain and obvious. This divorcing of school and life can be pre-

vented, and vitalizing motives gained, by taking care, from the early grades on, to have included among the study tasks a goodly share of questions growing out of the everyday interests and affairs of the pupils, but necessitating for their final settlement recourse to the proper printed authority. In fact the modern standard for estimating the success of a teacher emphasizes skill in motivating school-work through real situations, and guiding pupils to the study of subject-matter through the needs arising from their natural interests.

Questions requiring more thought. The second way in which the questions for study should become more comprehensive is in the character of the thinking required. In the beginning work, the question must be relatively simple, and when the answer is found it is merely a matter of the pupil's recognizing it as such. He may even place his finger upon the sought-for words and triumphantly call them out. In the days when memoriter study was the regular thing, this style of question and answer was the one most commonly used. But modern practice uses it only as an introductory step, and seeks to follow it immediately by a type of study question that demands more thought.

A very comprehensive presentation of the possibilities of this type of thought question, with illustrative treatment for the various grades, may be found in Hall's *The Question as a Factor in Teaching.* In this same connection teachers will find material of double

value in the latest revision of the *Kansas Silent-Reading Tests*, by Monroe. This latter not only provides a carefully worked-out series of exercises in interpreting reading matter, ranging progressively from questions simple enough for the first grade up to complicated thought questions difficult even for advanced high-school students, but will also suggest standards of attainment that should be expected of pupils in the grades corresponding to the divisions of the test material. Obviously the best way to develop greater ability in this respect is by guiding the selection of assignment problems toward greater exercise of thoughtful judgment.

Adaptations to particular lesson types; drill exercises. One type of lesson in which very unfortunate results may follow, if the pupils' preparation is not guided by a clear understanding of what is to be done, is that involving drill exercises. Most of the recitation time devoted to drill is spent in trying to correct wrong habits, as any teacher who has struggled with repeated misspelling, slipshod language, and faulty fundamentals in arithmetic will probably agree. Frequently these wrong habits are the result of the pupils' not knowing precisely the right thing to do in the study period, and, more often still, repeating the wrong thing during the study period fixes the incorrect process and counteracts the painstaking efforts to establish the right habits during the recitation period. Penmanship, spelling, and punctuation furnish ever-

present examples of this latter form of waste. The plan of having pupils write each month sample forms or pages which they are willing to have serve for the following month as the minimum standard of excellence in their written work brings much better papers, and similar devices for preventing bad habits during study time will occur to resourceful teachers. But the point to be emphasized now is the need of precautions to ensure accuracy on the part of pupils with regard to newly inaugurated processes which the study period is intended to strengthen.

Spelling furnishes a good example of the principle stated above. Until recent years the time-honored custom in that subject was to assign a list of words for study, and the pupils would attack the list more or less vigorously and vociferously. The recitation time was spent in discovering how many they could spell; that is, in *testing* spelling and not in *teaching* it. Some of the earliest scientific studies of comparative results were in regard to spelling, and disclosed the startling fact that the length of time spent by pupils in so-called study of spelling made almost no difference in the quality of their habitual spelling. Then, for the first time, attempts at really teaching spelling began to be made. The efficient teacher of that subject now devotes a good share of the recitation to teaching the pupils what to do with their spelling words so that their practice time will be profitably spent. Testing is subordinate to teaching, and loses its discouraging

phases if the teaching has been well done. The same principle applies to all exercises that include drill either on facts or forms. The possibilities of misused time and negative results are so great that the utmost caution in assignment is necessary. Unless the recitation has inaugurated the processes and established the forms so well that pupils know certainly what to do in practicing them, it is better not to assign drill at all for the study period.

The solution of problems. The severest test of ability to study comes in dealing with problems. These occur in various subjects, notably geography, history, and mathematics. The arithmetic problem may be considered as typical and as being the kind pupils are apt first to find difficult. The difficulty is due usually to a failure to comprehend clearly what is required. Unless the processes needed for the solution are glaringly obvious, the efforts of most pupils are likely to be guesswork, and the results correspondingly ridiculous. For example, an eighth-grade class was given a general examination on unfamiliar questions taken from "Food Problems," one of which was:

> Hotel-keepers have found that the most economical way to serve butter is in one-fourth ounce portions. How many can be cut from a pound?

Many readers have probably already guessed what happened. Over half of the class, seeing the fraction one fourth, and knowing that a pound contains sixteen ounces, promptly took one fourth of sixteen, and put

down four as the answer with apparently no thought of its absurdity.

On another occasion the writer observed a class of fifth-grade pupils, who had come in their text to their first extended series of problems and were wrestling with this one:

> A boy raised five bushels of popcorn and sold it to a grocer for $1.50 a bushel. The grocer sold it out at 5 cents a pound. How much more would the boy have made if he had sold it in the same way? (Popcorn on the cob weighs 70 pounds to the bushel.)

It was intended to be a practical problem, with an appeal to the interest of pupils of that grade. Yet only two of the pupils were arriving at anything they had the temerity to suggest was the solution. Of these two, one said $3.50, while the other said $7.50, and neither was disposed to show confidence in defending his answer.

Recitation often fails to meet needs. The perplexity of these pupils was typical of that felt by most pupils when, in about the fifth grade, they begin to encounter problems of some slight complexity. They have learned to add, subtract, multiply, and divide, and are better prepared to do mechanical work than to think. So when they meet a complicated problem, a frequent question is, "What does it want me to do?" — meaning, "What process am I expected to use?" When they feel that something must be done, they are apt, unless guided by the assignment toward thoughtful study, to begin putting down the most obvious figures

in sight and mechanically combining them until something is produced that looks like an answer. The danger is that this substitution of mechanical manipulation for real thought will become habitual, and result in such absurdities as the pupils were guilty of in dividing the pound of butter.

A common style of recitation that fails to remedy this condition, and at the same time fitly illustrates the time-wasting procedure criticized in the previous chapter, is well described in the following paragraph from *Modern Elementary School Practice*, by Freeland:

> Formerly a common method was first of all to ask, "How many had trouble with the first problem?" — then, "How many 'got' it?" A child who solved it correctly was allowed to copy his solution on the board. This procedure was repeated with each problem. Those who had been unable to do the work received no exercise, but sat at their seats. Those who did not need this particular exercise did the work, which, indeed, was not real work, since they had already done it once. After the problems were all on the board, the bright children who did not need the exercise (at least this particular exercise) were asked to "explain" their problems. This they did in turn, but what they said was merely the story of the steps they took, rather than an explanation. The children who missed problems often ignored the entire procedure. It is certain that they profited little by it.

It is needless to expect improvement in study methods to follow such a recitation. Besides encouraging the weaker pupils to imitate methods which they do not comprehend, it consumes valuable time that should be used in having pupils learn steps necessary to thoughtful problem-solving.

Assignments that guide and stimulate thought. What is needed is the kind of recitation and assignment that will lead the pupil to the realization that the process of solving a problem consists of a series of simple steps, to be taken in their proper order. His natural tendency seems to be to regard a problem as an indivisible unity, and he tries, so to speak, to swallow it at one gulp. The difficulty in getting a pupil to break up a problem into parts is greatly lessened if he begins, and continues as much as possible, with real and vital problems arising from projects or experiences of his own. If, for example, in his home garden a pupil undertakes to discover how profitable it is to grow tomatoes on a plot ten by thirty feet, he will have a complicated general problem and several minor ones to solve. The questions of labor and expense in preparing the soil, determining the number of plants needed, purchasing and setting-out the plants, cultivating and protecting his crop, and finally marketing, all prolong the final solution of his main problem for many weeks. Or, in case of a class picnic, the problems of planning refreshments, making purchases, and apportioning expenses may all be solved in an afternoon. But in either case there is little danger of confusing the various elements entering into the problems. Circumstances compel each to be kept distinct, and one detail must be settled before another can be taken up. The essential fact which prevents children from jumbling the details of the problems of real experience, as they do those from

books, is that they see vividly each step necessary to the solution in the natural order in which it confronts them. Some pupils can visualize just as clearly, and in proper order, the steps involved in a book problem. Such pupils have no great difficulty in solving the problems presented in the text, and therein is suggested the most important thing needed in preparing pupils to study an assignment of problems.

The way in which pupils may be led to visualize the steps of a problem may be illustrated by what was done in the case of the fifth-grade pupils who were at a loss as to what to do with the problem, mentioned in a preceding paragraph, of the boy who sold his popcorn to the grocer instead of retailing it by the pound. It was suggested that they "act out" the problem. One pupil took the part of "the boy," another the grocer, and three others acted as the latter's round of customers. All the others as they watched were to write down the questions they wished to ask as to quantities not directly told by the book. Every one entered into the spirit of the pantomime, since no word was to be spoken. The boy pretended to carry in, one at a time, five heavy bags of popcorn; the grocer paid him; then the succession of customers each paid for a very tiny bag handed out by the grocer; there was not even lacking the grocer's final look of exaggerated satisfaction over his profits. The questions written by the pupils almost without exception contained the following: "How much is the grocer paying the boy?"

"How many pounds can the grocer sell?" "How much did the grocer get for the popcorn?" "How much more did the grocer get than the boy did?" The question was then asked, "Can you all now find the answers to each question in the order they come?" One boy apparently voiced the general sentiment when he exclaimed, "As easy as play!"

Similar lists of questions were then made out by the pupils for each of the next five problems, "acting out" all in which details were apt to be confused in visualizing. This required just fifteen minutes. These problems, with five more not discussed in class, were assigned for study. Judging from the helplessness shown by the pupils at the beginning of the recitation, such a requirement, with no further instructions as to its study, would have resulted in haphazard juggling of figures, without aim or interest, and only those pupils who had tractable parents or generous friends would have made a respectable showing at the next recitation. As it was, absolutely no help was given them beyond insisting that they "act out" and "see" every step to be taken, and answer in its order every question that arose. But the class set to work in eager confidence. Study time holds no dread for pupils who are sure they know what to do.

Checking up the work. On the following day when reports were called for, every pupil was ready with the first five problems. It required only two minutes to check over and compare results. Of the next five,

assigned without detailed preparatory work, one fourth of the pupils had worked all, and the majority had worked three or more. Any pupil who had not succeeded with a problem was asked to read his questions, to determine whether he had "seen" the details of the problem. Thus it was immediately shown wherein he had missed a necessary step. Pupils who thought they could make him "see" this by action or rough blackboard illustration were allowed to do so, but no one was allowed to work the problem for him. Eight minutes sufficed to put all pupils on the correct road toward the solution of their unfinished problems. The remaining time was then free for a forward look at the next study work, to which was added an elastic assignment of supplementary problems for pupils who were able to do one or more in addition to the minimum for the class.

Some such plan, modified according to the needs of the particular grade or grades, may profitably be substituted for half of the familiar type of backward-looking recitation on problems. The one essential is that the daily review and assignment shall provide in some way for a forward look which will ensure that pupils know what to do, and are started far enough on the right road to prevent the stultifying practice of merely "putting down" the figures in sight and mechanically "doing something" with them. Arithmetic lends itself admirably to individual instruction, and in all exercises for the mastery of fundamental

principles and processes, some provision for individual work and progress is desirable even where the teacher has a comparatively large group. But in the problems growing out of the applications of these processes, it has been the writer's observation that more reality and consequent comprehension can be secured through group participation, or, better still, through group projects. The individual project is, of course, valuable, but rarely provides sufficient variety of application. When problems are once made "real," either through actual material or, vicariously, through an interested and vivid visualization of the actual steps of their development, pupils are safely prepared for independent study in which it is necessary to break up similar problems into logical parts. Dean Davenport once said that " most students suffer from mental dyspepsia, due to bolting their reading." It is certainly true that acute mental disturbances regularly follow the effort to swallow problems at a gulp. Any amount of preparation necessary to prevent this is time well spent.

The problem in geography. The question of preparing pupils to study problems in arithmetic was discussed in rather lengthy detail because the first need of problem study usually occurs in connection with that subject, and, further, the most fundamental principle found there applies to such study in other subjects. That is, the necessity of having the pupil see that he can and should break up a problem into rela-

tively simple elements is essential under all conditions. But the problem, as made use of in the modern teaching of such a subject as geography, has taken on a broader significance, and requires special consideration. The complexity if not the difficulty of the solution is much increased by the fact that the data necessary for the final conclusion must be selected and tested by the pupils, instead of being furnished completely by the conditions of the problem as in mathematics. The consequent need of guidance in finding, selecting, and evaluating facts with reference to their significance in the solution of the problem set adds peculiarly important features to the task of preparing pupils for intelligent activity in this type of study in geography.

The nature and necessity of problems in the study of geography. The modern conception of geography, upon which all textbooks written or rewritten during the twentieth century have been based, is that of relationship between man and his environment. Out of the overwhelming mass of possible facts, only those are selected and included in our school geographies which are considered valuable for explaining why people live where they do, why certain industries are characteristic of certain localities, and, in general, how the physical environment influences the activities, relationships, and mode of life of the people in any region. These questions or problems were definitely in the mind of the author when he selected his material, and

since, as already quoted, "in order to thoroughly understand a book, students must seek to frame the questions which it answers," any intelligent study of the text in geography must, at the very least, be guided by some appreciation of these questions which the author is trying to answer through the material which he presents. So even the teacher who, on account of limited equipment and the absence of adequate illustrative material, has hesitated to try the problem method of teaching the subject, should realize that the spirit of that method must govern even the barest textbook assignment if the study is to yield anything better than the reproduction of disorganized facts, aimlessly accumulated.

There is another reason why the study of most of the facts in geography should be directed toward the solving of problems of relationship. All scientific investigations regarding varying facility in acquiring knowledge, and length of its retention, demonstrate that these are directly dependent upon the need felt for and use made of such knowledge. There are many valuable facts in geography which should be learned and retained, but unless a need for these facts leads to a search for them, and their use in explaining relationships proves their value, they are likely to be what Bobbitt has aptly termed "deciduous information"—the sort that falls away after examinations as having no longer any use or permanent value.

Formulating problems. In preparation for this type

of study in geography, the character of the problem and the manner of its formulation are extremely important. It must be one that strikes the pupils as worth while. In fact it is, to them, no real problem at all, unless it blocks the pathway to something they wish to know. The use of stock problems, devoid of real interest to the pupils, may cause the method to degenerate into the most formal, lifeless exercise imaginable. Since it is essential that the pupils feel that the problems are really their own, it is very desirable that they be led to formulate them. This, of course, does not lessen the necessity of previous planning by the teacher, for a class can be skillfully guided in recitation toward a situation in which the proposal of new problems comes naturally from the pupils only when this situation and the essential character of the problem have been foreseen and made the goal to which the teacher's suggestions lead.

As was pointed out in a more general way in the first part of this chapter, coöperation by the pupils in framing questions for any study adds much both to clearness of comprehension and interest in the assignment. In the problem phases of geography and history, the importance of such coöperation becomes paramount. It is well to repeat also that their first efforts will be halting and crude. With sympathetic suggestions, however, improvement is stimulated, and the progress is surprising when once they are made to realize that they have as much share in the forward look as in the

backward look of the recitation. Strayer and Norsworthy say, "A good recitation ought to culminate in the statement of the questions yet to be answered quite as much as in a statement of what has been accomplished." The responsibility of the pupils should be equal in both phases, and their added interest both in that kind of recitation and in the subsequent study will be a revelation to any teacher who had never before realized that children prefer looking forward to looking back.

Data, inference, and verification. The complete round of activity in the problem type of study in any such subject as history or geography falls naturally into the following steps: formulation of the problem; preparatory review of known material bearing on it; collection of new facts and data; inference or tentative solution; testing and verification of the conclusion. The first two belong to the forward-looking part of the recitation; the third should constitute the major work of the study period, but the recitation should ensure that the pupils know where to find the necessary data in textbooks or supplementary sources. Dodge and Kirchwey, in their excellent book, *The Teaching of Geography*, express doubt as to the advisability of having pupils attempt either of the last two steps during the study period. Any one familiar with the usual haphazard style of study will understand the reason for their doubt. But any improvement in study must lead toward greater individual independence in

judgment, and the study period should afford opportunity for every pupil to make and test his own inferences. The most cogent reason, however, why this should be provided for in the study period is the practical need for it. Mental processes cannot be divided sharply into separate steps. If any one is interested in a problem, he will, as he collects the facts bearing on its solution, naturally and inevitably make inferences or guesses as to what the conclusion will be. These conjectures begin almost with the acquisition of the first data, and constitute normal mental activity for the adult as well as the child. The difference is that the mature mind is more apt to suspend judgment and investigate further. The child finds this difficult and so is prone to "jump at conclusions." If his inference seems satisfactory, he considers the problem solved, and sees no use in studying further. This fact, as will be pointed out in a later chapter, constitutes a frequent source of unfinished study.

The only remedy for these premature conclusions is to see that the pupil is furnished with checks and tests with which to verify or disprove his conjectures. The nature of these will vary so widely that general directions can hardly be given. Usually, however, they will consist of known and established principles with which the new inference must harmonize, or else a summary of necessary conditions for the new solution, so that enough facts must be found to satisfy all these before the inference can be considered trustworthy. These

tests may frequently be standardized, so to speak, for a series of similar problems, so that little time is required daily in reviewing them. But just as the efficient mathematics teacher will insist that his pupils, in learning a new principle or application, shall learn also a check for accuracy in its use, so the teacher of any other subject, in preparing his pupils for effective study, should have them familiar with means of testing the trustworthiness of their conclusions, wherever such tests are at all necessary or possible.

Other subjects. The suggestions which have been made with regard to preparing pupils for thoughtful, intelligent study in arithmetic and geography will apply with only slight modifications to history, civics, physiology, hygiene, science, and certain phases of reading and literature. In a book to which reference has once before been made, *Supervised Study in History*, Miss Simpson gives some very valuable suggestions as to how pupils may be led to formulate their own problems in that subject, as well as how to have them verify their own inferences. In most of the subjects named above, the testing of conjectures will include reference to trustworthy authorities for facts to prove or disprove the inference.

In subjects of the more formal type, preparation for successful study will resemble more closely that for drill exercises. For example, in the formal phases of language study, it is the business of the recitation to give a clear understanding of the forms, so that the

study period can safely attend to the mastery of them by application and use. If the work calls for language expression, the recitation preparation should take what might be called the "unfinished story" form. That is, in the latter part of the recitation the pupils should be safely launched on their composition, while the teacher has opportunity to see that they have something to express and have demonstrated that they at least know how to start. The study period can then be used for completing what the recitation has seen properly begun.

The time for the study period. After all that has been urged regarding the desirability of getting study well started during the recitation time, it hardly needs to be added that the proper time for the study period is as soon after the recitation as possible. The points to be studied are most clearly and accurately in mind then, and interest is at its highest point. Whatever wisdom there is in the maxim, "Strike while the iron is hot," surely applies to the study period. The fact that the next recitation does not come until the following day is an added reason for study immediately after the recitation in any subject. For whatever is to be retained until the recitation must be well enough learned to hold for a whole day, a condition far more favorable to its permanent retention than if it were only necessary to remember it during the few minutes just preceding the recitation. Under the best conditions there is no break to mark the end of the recita-

tion and the beginning of the study period. The former prepares for and begins the work of the latter, and when all pupils comprehend what is to be done and are fairly started upon it, the teacher may quietly leave them to their study.

Chapter summary. The first condition essential to successful study is that the pupils know definitely what is to be done. In order to ensure this, troublesome words or difficult passages should be cleared of their dangers in advance, and pupils should be required to restate and explain the assignment as a test of their comprehension of and preparation for it.

Both to promote understanding of what is to be done and to inculcate a correct study attitude, pupils should be led to take an increasing share in and responsibility for framing the questions and problems of their own assignments. The character of the questions for study should lead constantly toward thoughtful study and away from mechanical finding of answers. In drill exercises and formal work, the vital necessity for having pupils know exactly what to do arises from the danger that they will nullify the work of the recitation by wrong practices in study time.

The solving of problems is the severest test of study efficiency. In the mathematical type of problem the greatest need in preparation is to have pupils know how to break up the problem into steps, and "see" each successive development. In the "thought problem," as used in geography and history, teaching skill

is needed to lead pupils to coöperate in selecting and stating the problem, and as an essential preliminary to thoughtful selection of data and careful testing of inferences, both of which are fundamental to good study and should be provided for in the forward-looking part of the recitation.

QUESTIONS FOR STUDY

1. A number of students, who observed successive lessons taught by various teachers, reported that it was the regular custom of the teachers to ask, after making an assignment, if all understood what was to be done. Almost without exception the pupils would indicate that they did. In the following recitation, however, it usually developed that a number had not understood fully what was assigned. What are the causes and remedy for this common difficulty?
2. Select some paragraph in a history textbook, and show (*a*) how an understanding of it is dependent on discovering what questions the author was trying to answer; (*b*) how you would guide pupils to frame these questions.
3. Mention various ways in which the extra time required for a well-understood assignment may be saved in the subsequent recitation.
4. It is a matter of common experience that a recitation for which the pupils are poorly prepared consumes much more time and requires much

greater effort on the part of the teacher than one for which the pupils have made satisfactory preparation. How do they compare in educational value? Why is the teacher likely to overestimate the value to the pupils of the extra effort put forth in the first-named case?

5. What advantages are there in the plan of having pupils prepare or choose each month their own standard samples of written work over the custom of having the teacher decide the standard to which their work must conform?
6. What is the difference between *teaching* spelling and *testing* spelling? How would you teach a pupil to study a spelling lesson?
7. Discuss the relative advantages of having the study period for any subject immediately after instead of before the recitation period.
8. From your own experience or observation give examples of assignments that were misunderstood and suggest ways in which the misunderstandings could have been prevented.
9. Thorndike, in his *Education*, p. 197, says: "Even gifted teachers often, in commendable zeal for interest and economy of time, prepare pupils in advance for every chapter to be read by outlining it, eliminating all difficulties, and accepting the ability to give the substance of the chapter as all that the pupils are to do. The pupils may be left unable to study a book intelligently by

themselves. If they had been given problems to work out with its aid that were just within their capacity, they might have absorbed its substance less easily, but would have gained a more valuable knowledge of its relations and uses, and also have had some training in the independent use of books."

To what extent has it seemed, in your own experience, that the practice of giving pupils ready-made outlines as guides for study weakens independent effort in the way set forth in the quotation? What other objections might be urged against this "predigested" type of outline as an assignment?

10. Taking as a general topic "The Causes of the Revolutionary War," suggest a form of assignment that would furnish adequate guidance for pupils without being open to the criticism expressed in the quotation at the beginning of the exercise above.
11. When a pupil has finished a study assignment in a suspiciously short time, it is not unusual for the teacher in charge of the study class to say, "You'd better go over it again." What objections are there to such an admonition? Can you suggest a better way to proceed in such cases?
12. What do you consider necessary in order that a problem may be "real" to a child?
13. After such an assignment has been given as is

called for in Exercise 10 above, explain what measures might be taken to enable the pupils to know independently when this assignment has been satisfactorily completed.

14. Which do you consider better as an assignment, poorly formulated problems proposed by the pupils, or comprehensive, well-formulated problems proposed by the teacher? Give the arguments in favor of each.
15. C. A. McMurry says, "The important project is always a problem and a mother of problems." Suggest some project appropriate for a sixth-grade class in geography, and show how its development would stimulate pupils to discover and set forth problems for their own study.
16. When study involves the solution of problems, a very essential requirement for successful preparation is that the pupil shall verify his conclusions. If an assignment in geography included the problem, "Why has the city of St. Louis grown to such size and commercial importance?" show how the pupils might be prepared in advance to test the soundness of their conclusions.
17. It is often said that the chief source of difficulty in arithmetic and algebra with many pupils is that they do not "know how to read problems." Where does the responsibility for this weakness belong? What measures could be taken in the lower grades to lessen or prevent this difficulty?

18. If pupils in a third- or fourth-grade class do not show much ability in framing questions for their own study, suggest some definite measures that might be taken to improve the situation.

SUGGESTED READINGS

Earhart, Lida B. *Types of Teaching*, chap. XIV.
Colgrove, C. P. *The Teacher and the School*, chap. XIX.
Davis, S. E. *The Work of the Teacher*, chap. VI.
Bagley, W. C. *School Discipline*, chap. VI ("Individual Assignments").
Sears, J. B. *Classroom Method and Management*, chap. XIII.
Strayer and Engelhardt. *The Classroom Teacher at Work*, chap. VII.

CHAPTER III

HAVING A MOTIVE FOR STUDY

Interest and study. The fact that there must be interest as an indispensable antecedent to effective study can hardly be too strongly emphasized. Vigorous mental activity is put forth only when there is a feeling that the results sought are of sufficient value to justify the effort. In fact, McMurry defines study as "the vigorous application of the mind to a subject for the satisfaction of a felt need," thereby emphasizing the fundamental fact that there can be no such thing as study without an impelling feeling or interest. Other modern educators have stated this principle in even more vigorous language, and most teachers probably accept it as a general and abstract truth. But in actual practice, most assignments of work to be studied are made with no provision for securing positive interest in what is to be done. Apparently it is either assumed that the needed interest will glow forth spontaneously at the opening of a textbook, or else most teachers are not fully convinced of the necessity and practicability of making such provision a definite part of their planning and assignment of work for study.

The latter explanation seems natural when one remembers that these same teachers, while pupils

themselves, attended schools in which the prevailing disciplinary conception of education regarded the mere assignment of lessons as the chief and sufficient reason why those lessons should be studied. The fact that the work was uninteresting or even distasteful to most of the pupils was regarded quite as much a virtue as a fault — it provided better discipline. In spite of the system, a few of us, mainly from temperament, home influences, or personal likes, found the school-work tolerably interesting, and were influenced by that fact toward becoming teachers later ourselves. This fact that teachers are drawn largely from the unrepresentative minority to whose interests and academic temperament school-work happens naturally to appeal, and who thus are unappreciative of the lack of interest among other pupils, coupled with the unconscious tendency of us all to teach as we have been taught, has retarded any general revision of school practice such as would make the stimulation of interest a definite feature in the assignment of lessons. The need for such revision becomes obvious when one follows the normal activities of a pupil to whom an uninteresting lesson has been assigned.

Effects of uninteresting assignment. Attention is controlled directly by interest; that is, by a feeling that the object attended to has value or importance. This feeling may, of course, arise either from the belief that the object of attention threatens one's happiness and welfare, or from the belief that it will contribute in a

positive way toward greater happiness, although with children the latter has much greater influence unless the danger is extremely menacing and immediate. Strictly speaking, to ask a child to study an uninteresting lesson is asking a psychological impossibility, since the mind, from its very nature, refuses to attend to anything which is not felt to be worth the effort of attention.

This difficulty was encountered by the old-fashioned schoolmaster of pioneer days, so he stimulated artificial interest in the conning of lessons by a sternly devised and vigorously applied system of penalties — a negative type of interest, to be sure, but, as tradition has it, the danger was made sufficiently menacing and immediate to secure the form and appearance of diligent study. Tradition tells us also that nothing beyond the external forms and results of study was usually secured or expected, but, as the incentives were only skin deep, it was hardly to be expected that interest and effort would go deeper. This practice of depending on negative incentives to secure the semblance of application during study periods has been handed down to the present day, and candor compels the admission that, in very many schools, the assignment of lessons regularly omits any attention whatever to reasons for studying, but takes for granted the understanding that unpleasant consequences are to follow a violation of the conventionalities in this respect. The penalties have taken a much milder and

less muscular form in their transmission to the present day, but are still sufficiently menacing to cause the class to assume, more or less promptly, the attitude and appearance of study. Then begins a very instructive illustration of the normal operation of the laws of interest and attention, especially if viewed from any angle except that of the teacher in charge of the room.

How such assignments work out in practice. For any individual there are always numerous objects and activities that are more or less interesting. But one of the laws referred to above is that attention is given to the particular one of these which, at the moment, is felt to be of most interest or importance. So, in the case of the class to which the teacher has signified that it is time for study, habit and experience cause the feeling that the most important thing at that moment is to assume the position and begin the movements expected under the circumstances. George and John, in response to the questioning look of the teacher, atone for their delay in inaugurating the conventional activities by the ostentation with which they carry them out. When this has been executed to the apparent satisfaction of the teacher and she turns to other work, the relative importance of this activity diminishes, and other interests begin to compete for attention. Unless something has created an interest in the material itself, good intentions are unable to maintain the unequal battle, and the attention turns to something which, for the moment, is more interesting. So

George leaves the stage of his study desk set to carry on the appearance of work, adjusts a book to serve as a screen for activities, and gives his attention to what his interests suggest are worthier objects.

The first thing that seems important enough to claim his attention is the coming match ball-game. This is a safe beginning because he has learned to look past his book at such visions, with nothing in his behavior to attract reproof. After he has played through a critical stage of this game with such startling skill as to bring wild cheers from the spectators and a later offer from a big-league manager, who, by a remarkable coincidence, happened to be present, he notices that John, a little distance away, is busily engaged in constructing something. The instinct of curiosity immediately suggests that this is of such importance as to deserve attention, so George sits alert and keenly observant, engaging for the moment in real study as he tries to solve the problem of John's zealous activity. When he discovers that the object is a paper pinwheel, the instinct of imitation prompts him to try the same, but, after an unsuccessful attempt, he uses the paper for drawing comic pictures, a line of activity which he has found to be a more satisfactory expression for his creative impulses. Social instincts then prompt him to share the enjoyment of his productions, so he props up the paper so that other pupils may see his cartoons, and the evident appreciation on the part of his neighbors affords him keen satisfaction and con-

vinces him that such activity is well worthy of his attention. Just then he observes that the teacher's gaze is upon him, and the importance of resuming a study attitude rises to the point of securing his attention. He realizes also that the study period is almost over, while the danger of total unpreparedness is sufficiently immediate and menacing to hold his attention to such a smattering preparation as will barely avert the unpleasant consequences attendant upon complete unfamiliarity with the work assigned.

When recitation time comes, George naturally assumes a defensive attitude. Since his chief incentives for studying were negative in character, so his chief interest in the recitation is to defend himself against unpleasant consequences. In his defensive tactics he relies upon chance words or phrases which he can remember from the text, gives sidelong glances at the open book on his own or a neighbor's desk, frames ambiguous replies in the hope that the teacher will interpret them favorably, reëchoes the whispered answers supplied by his neighbors, and endeavors in all possible ways to conceal his ignorance of things which he has never felt to be worth the effort of really learning.

Opportunities missed. To expect improvement in the power of self-directed study to result from such activities as those just described is as absurd as hoping to harvest figs from thistles. And yet the sketch merely shows the normal activities of a normal boy,

with reasonably good intentions, during the usual circumstances following the usual assignment. A boy possessing unusual courage and frankness, admirable American qualities, is apt to be visited with discipline if he acts as he feels and scorns the subterfuges of his classmates. The vicious effects upon the moral standards of pupils should condemn the practice of turning them toward evasion and deception by asking the impossible task of study without interest, even if its intellectual results were in any way satisfactory. In the logic of actual results the double condemnation of the custom should be final. Its continuation seems strange in view of the opportunities in any school for enlisting the interest of pupils — opportunities easily taken advantage of by any teacher who has a sympathetic understanding of the instinctive sources of children's interest. For example, each of the instinctive tendencies which in its turn directed George's attention toward some triviality, could have been utilized to claim his interest and direct his attention toward the legitimate work of the study period, as will be discussed a little later.

The hunger of the pupils for anything at all interesting will make acceptable an assignment that has even the slightest sauce of interest. This hunger is shown by the eagerness with which they pay attention in the schoolroom to activities too trivial for more than a passing glance on the outside. Appreciation is at its maximum, and not only are funny things superlatively

funny in school, but anything which holds a touch of real life interest can also be made more interesting there than elsewhere. An illustration of this may be seen when there is brought into the school room a war trophy, a piece of scientific apparatus, even caterpillars, or pet animals, provided the teacher is sensible enough to make a better use of the last-named than that historic pedagogue to whose school Mary came followed by her little lamb. The teacher who complains that pupils are prone to be looking for anything as an object of their attention except the lesson assigned, should recognize instead their hunger for interesting things as an opportunity and invitation to use it by making even a moderate appeal to interest in the assignments. Children come to school hoping to find the work interesting; the school organization is arranged to furnish conditions favorable to study; there is the minimum of competition for the children's attention; everything is in the teacher's favor. Under such circumstances, to supply the element of interest so indispensable to real study must surely seem easier than to endure the distracting consequences that inevitably follow the neglect of opportunities to stimulate interest in work assigned.

The problem of interest. In his *Principles of Teaching* Thorndike says, in regard to securing interest, "The problem of interest in teaching is not whether children shall learn with interest or without it; they never learn without it; but what kind of interest it

shall be; from what the interest shall be derived." This puts the problem in the practical form in which most teachers meet it. They wish to know what kind of interest is to be made use of, and what is to be the source of it. They have heard of "soft pedagogy," and of schools in which attempts to make everything "interesting" have broken down all standards of work and behavior, so they are justly suspicious of that kind of so-called interest. Moreover, although they have seen the splendid work done by certain pupils who were really interested in some study and have earnestly wished that the entire class might catch the feeling, they know that interest cannot be plucked out of the air in any magical fashion, and wish to know from what sources it can be drawn and how it can be shaped to accomplish trustworthy and desirable results in the preparation of lessons.

Interest and work. Many well-meaning people have fallen into the error of confusing interest with mere entertainment. The resultant attempts to make everything pleasant for the children at the expense of serious, earnest work are a travesty upon real teaching, and usually fail even to please the children. The most vital interests of children lie not along the paths of ease and pleasantness, but on the road to serious, strenuous effort. Thorndike makes clear the distinction between activities that are merely pleasant and those that are interesting, and adds, "a tug of war and putting up the heavy dumb-bell the fiftieth time are

definitely painful, but may be very interesting." The writer remembers a plucky little left end on a high-school football team, who, in a losing game, painfully threw himself again and again in front of the heavier opponents, and resisted all entreaties to spare himself and leave the game, because he wished to keep the opponents' score from becoming what he considered disgracefully high. He scorned ease and comfort, and struggled on with grim fortitude on account of his interest. Every mother will testify how ready children are to risk life and limb and work themselves to exhaustion in the earnest pursuit of some absorbing interest. In fact, a vital interest is the only means of securing anything near the maximum of serious effort and energy of which children are capable.

In this same connection another fact should be emphasized, which is in a sense a corollary of the principle just discussed. This is that children when working from interest are partial to clear-cut, definite regulations, and rather high, exacting standards. The well-organized, accurately trained team holds the interest of its members better than the easy-going, unorganized team. Children in their play will tolerate no wabbly, ambiguous rules. The slipshod player is roundly criticized by his mates. The strict regulation of a Scout or Camp-Fire organization, including even unpleasant duties, has its type of appeal, and the voluntary "gang" or club is always exacting in some of its requirements. For the purposes of this discussion,

then, two important facts stand out regarding the kinds of interests and the activities that best stimulate and hold them: first, vital interests are active instead of passive, and are strengthened by the serious effort which they lead the child to put forth; and, second, work inspired by interest is most apt to retain that interest when done according to definite and reasonably exacting standards. Or, to put it negatively for the sake of correcting erroneous impressions, the real interest with which good teaching should stimulate good study is not passive and easy-going in character, nor courted by weak-kneed, slipshod requirements.

Harnessing interest. The recognition by educators that the term "interest" is somewhat indefinite, and subject to misinterpretation as well as misapplication, has led to the use of other terms which denote more definitely the active, organized type of interest just discussed. One of these is the term "motivation," which signifies the employment of interest to secure the willing, intelligent accomplishment of specific tasks — the harnessing of interest, so to speak, as the motive power for the necessary work of the school. The object, of course, is to have the child realize the value and need of the work assigned, and only such natural interests of the child are appealed to as will furnish a motive for earnest purposive effort. Wilson and Wilson, in their book, *The Motivation of School Work*, put it as follows:

The child's work is motivated whenever he sees a real use

in it — whenever it satisfies some need he feels, provides some value he wants, supplies some control he wishes to possess, secures some desired end, or helps him to attain any definite goal.

The practical application of interest takes still more definite form in what is called the "problem-project method." The child undertakes a project which appeals to his interest and which may involve construction, production, investigation, or some other line of purposive activity for the satisfactory completion of which he willingly assumes responsibility. In the development of this project he will frequently have need of reference to texts or other sources for information. Incidental problems may arise which must be solved before he can proceed, and these, indeed, may prove even more interesting than the original project. When the importance and significance of any phase of school-work is thus demonstrated to a child through its necessity to the attainment of some chosen end, this acquired interest frequently includes related phases of school-work also and awakens a new attitude toward the material of that subject. The problem as a means of stimulating and utilizing interest is often effectively used without the constructive features involved in a real project. So valuable are its possibilities in this respect that the problem method is now the prevailing one used by the best teachers of geography and history. The conditions under which a problem constitutes an effective channel of interest will be discussed a

little later in connection with the instinctive basis underlying it.

The sources of interest. The question as to the sources from which interest is to be derived is an extremely practical one for the teacher. The complaint that it seems impossible to get a certain pupil interested in anything is not an uncommon one. The problem is simplified, however, in theory at least, by recognizing the fact that all interests spring from the fundamental instincts. Consequently new interests must either be derived from existing interests, or, under certain conditions, developed in response to and satisfaction of instinctive tendencies already present in the pupil. The utilization of these sources of interest is therefore dependent upon some understanding of the nature of the instincts themselves. Such understanding is the more necessary in order to avoid being misled by the often-repeated but dangerous maxim, "It is always safe to follow a child's instincts."

Adaptability of instincts. For practical purposes an instinct may be defined as an inborn desire for and tendency toward some particular type of activity. The motor adjustments necessary to the performance of this activity may or may not be inherited ready-made. Among the lower animals, instincts regularly include inherited preparations for the satisfying activity so nearly complete that there is only moderate need for later adjustments, and consequently small opportunity for modification or education. For ex-

ample, since a pig or a chicken instinctively "knows how" to perform practically every activity either desires to perform, the possible range of education for both of them is extremely limited. But in the case of man, the rich heritage of instincts fortunately consists mainly in desires and interests for the satisfaction of which he has no specific, ready-made adjustment, and for which he must consequently find through experience a satisfying activity. Moreover, the range of adaptability and variation in the activity that will satisfy the instinct is in most cases generously wide, and therein lies the great opportunity of education. For example, the instinct of self-display, as a preliminary phase of the mating instinct, finds expression in a startling variety of ways if one considers the dress and behavior characteristic of the courtship customs of various countries. In fact, a sufficiently striking illustration may be found in our own locality when we reflect that this identical instinct prompts both the offensive behavior of a vulgar street-corner masher and the courteous attentions of a refined gentleman.

The familiar remark that "human nature remains the same the world over" is a popular way of expressing the fundamental permanence and uniformity of human instincts, but the great work of civilization has been to eliminate gradually the crude, the vulgar, and the vicious behavior as expressions for various instincts, and to substitute for them constantly wiser, better, and more altruistic forms of activity in satis-

faction of the same instincts. The school has a similar task, and a tremendous advantage in the fact that its children come with a keen realization of the incompleteness and inadequacy in most cases of their means of satisfying the ambitious promptings of their instincts, and are hoping to acquire in school the knowledge and skill essential to the desired activities. The school must meet these instinctive needs and demonstrate the value and significance of the material it offers, or suffer from having the pupils turn in disappointment to other sources. Their resultant behavior is frequently silly and troublesome, but the insistent hunger for something to appease their instinctive desires seizes upon even the trivial or mischievous, and the undesirable interests thus formed force a double task upon later education.

The scope of this volume hardly permits further general discussion in the field of instincts, but a sympathetic understanding of the reasons for the apparently irrational interests and behavior of children is so necessary to a correct teaching attitude, and an intelligent utilization of interest as essential to study that it seems fitting, before taking up a few particular instincts, to add a reiteration and a warning; the first, the source of all interest is in instincts, and it is only by making a new activity contribute in some way to the satisfaction of instinctive desires that interest in it can be aroused; the second, there is no surer way to lose the good-will and coöperation of a child, and de-

velop evasion or hostility instead, than by attempting to suppress an undesirable interest without substituting at the same time another activity that has an equally powerful appeal to instincts then dominant in the pupil's life.

Instincts most available for study motives

Modern texts on psychology and child study give extended consideration to instincts, and contain lists of those involved in various phases of teaching. But reading on such topics should by all means be supplemented by first-hand observation of children at play, because it is during their play that they reveal most freely their dominant instincts and corresponding interests. To mingle unobtrusively among children at play, to note their choice and pursuit of what seems to them the most important things in the world, and to observe how the developing train of instincts impels them to "outgrow" the simpler imitative and repetitive activities of the primary grades, and turn to the keenly competitive and assertive interests of the middle grades, and still later to dominantly social tendencies, will best help one to acquire that familiarity with instinctive behavior without which lectures and reading have little practical significance. On that account, teacher-training courses should require, if possible, that students of psychology and theory spend supplementary time with children on the playground, preferably mingling themselves in the play.

Teachers who continue to do this are the ones who best understand and are able to use the natural interests of their pupils.

Various authors have suggested lists of instincts that are of value in teaching. The most comprehensive treatments are to be found in Averill's *A Psychology for Normal Schools*, Kirkpatrick's *Fundamentals of Child Study*, and the first volume of Thorndike's *Educational Psychology;* but the average teacher will probably find more practical suggestions in the latter's condensed discussion on *Principles of Teaching*, where he gives the following list as of chief importance to the teacher: mental activity, curiosity, physical activity, manipulation, collecting, ownership, sociability, emulation, kindliness, pugnacity and mastery, and independence and defiance. Strayer and Norsworthy choose the following somewhat similar list for their discussion: physical activity, mental activity, manipulation, acquisition and collecting, rivalry, pugnacity, imitation, sociability, kindliness, and love of approval. On the following pages only those instincts have been chosen for special treatment which are of immediate importance in furnishing motives for study.

Mental activity and curiosity. This instinct, in the opinion of Thorndike, "is the fountain-head of human intellectual development and has been in the past the chief support of school education." The child wonders, examines, speculates, "builds air-castles," and

engages in mental activity whether there is need for it or not. This instinct prompts many voluntary undertakings, from reading stories and solving puzzles to literary study and scientific research. After school years this instinct is usually operative in a comparatively narrow field where habit and other influences select special lines of investigation as a recreative pleasure; but in childhood its field is wide and shallow. Its weakness as a source of interest lies in its susceptibility to every changing attraction, and it alone will not secure continued application to an undertaking if there are competing objects of attention, and is most effective when reënforced by other instincts.

For example, a child's interest in having the parts of a machine explained or an experiment performed by some one else is far less keen and continuous than if he takes it apart or handles the materials himself, thus supplementing curiosity with the joy of manipulation. It does, however, afford the readiest approach and quickest appeal to interest of all the instincts, and can be put to valuable use. It is the chief source of initial interest in the problem or question method of teaching, but, in actual practice, this interest will be found unsteady unless supplemented by the force of other instincts, such as are suggested in the following paragraphs, and which all prompt interest that is less prone to be fickle and vacillating.

Physical activity and manipulation. This tendency is so much in evidence among school-children, and is

so frequently the source of most classroom disturbances and consequent annoyance to the teacher, that it seems strange, indeed, that it has not been more generally made use of in school, and its motive power enlisted as a helper instead of being allowed to serve as a disturber of the peace. The frequently used plan of depending on manual training or generous provision for physical exercise and play to relieve this tendency, and keep children quieter in school, is merely a defensive measure so far as study is concerned, and fails to use a valuable possibility for positive motives. One teacher, who had been much annoyed by a seventh-grade boy who was usually making darts, pin-wheels, gliders, or other objects instead of studying his history lesson, at last, half from desperation, half perhaps from inspiration, asked him to make models of the various means of transportation in use during the colonial period which they were then studying. He eagerly agreed to the attractive assignment, and in the succeeding days did more studying and searching for information as to how his models should look than he had ever before been known to do. The interest and pride which he took in his completed products were contagious, and the remainder of the class asked to be allowed to do some of their study in that way. The final display of their work in reproducing the styles of clothes for men and women, the colonial houses, writing materials, weapons, spinning-wheels, and implements, not only gave proof of the greatest enthusiasm

and most thorough familiarity with the period, but also represented the best and most willing study which that teacher had ever secured from any class.

This accidental discovery, by the teacher of a seventh-grade history class, of the mine of interest to be found in children's instinctive desire to handle materials and make things, might as readily have been made in some other subject, for there is no instinct open to a greater range of satisfying activities, and consequently available for use in more different lines. The making of relief models, filling in product and industry maps, constructing type forms in miniature, and similar constructive work, are only a few of the ways in which this tendency may contribute interest for geography study. The writer has never seen a more interested class studying *Snow-Bound* than one which constructed, as a group project, a reproduction in miniature of the living-room of the Whittier home, with the circle about the fireside. In the discussions, the reasons brought forward by each pupil to justify his opinion regarding some item showed most careful and intelligent study. Incidentally, the writer has rarely seen a class show such genuine appreciation of the spirit and message of the poem as this one — a result naturally to be expected from their keen interest in visualizing and "realizing" the details of the poem.

Just as the problem method of attack draws its initial interest from the instinct of curiosity, so the project method finds its best ally in the manipulative,

constructive tendency — the instinct to make things. It has been a misfortune that the manual training and handwork in schools have so often been confined to formalized wood-working, paper-folding, or similar "cut-and-dried" work, thereby affording only a narrow and barren expression for this instinct. The present tendency is happily in the direction of greater variety and elasticity in handwork, affording opportunity for the pupils to develop a wider field of interests and also permitting project and construction work in connection with other subjects. In most rural schools the only chance for handwork is in this way, and it is by far the most desirable, valuable, and interesting line that can be taken for much of the manual-training activity in any school.

In the primary grades, of course, this instinct appears as a tendency to undirected activity, restlessness, and noisiness. The foolish, wasteful practice of merely repressing this is now generally giving way to methods that furnish an outlet for this tendency in more movement and directed activities. But even in the first grade it should be led along its natural line of development into purposive construction, the form of activity which most fully satisfies it. Without such guidance it finds expression along mischievous lines. The most important thing for the teacher to realize is that these fundamental instincts, like murder, "will out," and, unless they are given an outlet favorable to study, they are very apt to appear in forms that not

only waste the time for study, but may cast a harmful influence over the whole work of the school.

Expression and communication. Another very strong and serviceable instinct is the desire to tell things. It is social in character, and so universal that very few of us, upon hearing an unusual piece of news, can resist the tendency to tell others and enjoy the impression it makes upon them. In the worst forms it can take it animates the gossip and scandal-monger, but, fortunately, it is usually satisfied by more creditable activities. This tendency probably inspires more volunteer recitation activity than any other, and the most frequent display of disappointment by pupils is at not getting to tell something they know and wish to tell. From the first grade on it is always a difficult and delicate task to "hush up" the child who wishes to tell unnecessary things, without arousing the resentment that usually follows the thwarting of an instinctive desire. Although many teachers unconsciously rely upon this instinct to furnish life for the recitation, very few make deliberate and effective use of it as a means of stimulating study.

Kirkpatrick, in his *Fundamentals of Child Study*, classifies the "expressive instinct" as one of the resultant instincts, "because it owes its origin to various other instincts." In the developed and modified form which it regularly has assumed by the time pupils are old enough to be assigned work for independent study, the factors of imitation and necessity are subordinate

to the growing desire for social participation, and perhaps to an element of self-display. On account of this composite origin, it is satisfied only by such expression as meets an appreciative response from others. Consequently any plan for making the most effective use of this instinct in motivating study should include an opportunity for the pupil to secure such a response. This condition is not fulfilled when all pupils are asked to study and recite upon identical material. There is as little joy in telling what one realizes the class already knows as there is in having to listen to what one already knows, and the response in the latter case is hardly characterized by stimulating appreciation. Under such circumstances it is not surprising that pupils in the upper grades and high school are apt to develop habits of fragmentary, lifeless, "monosyllabic" reciting — anything the teacher will tolerate, since they have nothing really interesting to tell the class. The inevitable effect of this upon their interest in study needs no comment. Meanwhile the instinct for expression and communication, finding no attractive outlet through the assigned work, takes other paths in quest of an appreciative response, and every teacher knows how troublesome and harmful the results may be.

Obviously, this instinct can be put to the best service only when each pupil can expect to contribute something to the recitation which the majority of the pupils do not already know. This is most fully ac-

complished in a socialized form of recitation, and especially where pupils are divided into coöperative groups. But under any arrangement of classification and grouping, it is possible for each pupil to feel a touch of individual responsibility or opportunity in the assignment. If the assigned work includes, as a minimum, five topics, each pupil may be asked to choose how he will undertake to supplement some one of these by personal investigation. This supplementary work may require the taking of measurements, an investigating trip after school, an interview with an official or resident of the community, performing an experiment, reference to an encyclopædia, or some other similar effort. Whatever form it may take, the pupil realizes that he is expected to be able to tell the class something new and interesting. Many pupils have had their study habits completely transformed in this way, for there is no keener incentive to careful preparation than the prospect of an interested, respectful, appreciative audience. Furthermore, when a pupil has earned and enjoyed the reward of attentive interest on the part of his classmates to some contribution he has made, he at once feels an interest in making all his preparation worthy of that attitude. There are few ways in which superior teaching ability is more clearly shown than in using effectively this instinct — in guiding the development of wholesome self-respect and generously willing participation in class discussions, without allowing the tendency to become exag-

gerated into egotistic "showing off," or to descend, on the other hand, into channels of clandestine, questionable communication.

Ownership. This instinct influences the interests of children all through their school life, but has been variously named from the forms of activity it inspires. Up to about the sixth grade the choice of these activities is influenced almost wholly by sentimental considerations, and the term "collecting instinct" is most frequently applied. Later the economic factor is apt to become more prominent, and the tendency then is known as "acquisitiveness." Adults are very apt to overestimate the appeal which economic considerations make to the interest of children. The number of children who have been admonished to learn their arithmetic because of its value for later money-making very far exceeds the number of those who actually have taken an interest on that account. It is true, especially in the upper grades and high school, that an effective appeal to interest can be made through economic channels, but the attempts to do so are so frequently ill-considered and futile that a warning seems in place. It should be remembered that sentimental considerations continue to dominate the child's choice of things with which to satisfy his desire for ownership, even after the economic factor becomes influential. Even the value of money is discounted in his eyes except as it leads to immediate possession of a desired object. Rare, indeed, is the child whose

interest responds to the call of "cold commercialism." Consequently the instinct for ownership can best be utilized through connecting the work to be studied with the child's wish to acquire immediately some tangible possession as an object of pride, affection, or expression for other instincts.

The interest in making collections, due to this instinct, may be used very profitably in connection with the study of geography, history, elementary science, reading, and arithmetic. The investigations so far made indicate that this tendency is strongest at about the ninth or tenth year of age. Since this is so nearly the time that the interests effective in the primary grades are beginning to fail, and something must be found with which to meet a growing restlessness and distaste for school-work, this instinct often presents the readiest and most serviceable pathway to interest. Especially in those numerous cases where the children are already interested in some line of collecting, the teacher should endeavor to make some use of it, either directly or as a means to stimulate interest in related lines. In the upper grades, where vocational interests may develop and give emphasis to economic values, there is opportunity to stimulate interest in whatever can be shown to have immediate and practical value of that sort. In actual practice, however, the instinct for ownership is regularly found to have spasmodic and unsteady motive value, and so, although it is extremely serviceable at times, when

"taken at its flood," the best regular use to make of it is in conjunction with some more stable source of interest, and especially with the constructive instinct.

Love of approval. One of the earliest and most persistent of the social instincts is the desire for approval. Under the normal relationship between teacher and pupil in the primary grades, the child's happiness is dependent upon winning an occasional approving word or smile. As the child grows older, he attaches increasing importance to the approval of his classmates, but even in the upper grades, if the teacher has won the respect and cordial good-will of a pupil, his approval still carries great weight. Consequently a teacher of attractive personality can get a strong response through the use of this instinct. It is probably wise, however, to choose some other form of appeal instead of personal approval, if it is at all possible. In the first place, educators agree that Superintendent Schaeffer was right when he declared, "The aim of the teacher should be to make himself useless." The pupil who works mainly to win the approval of the teacher is hardly developing power of independent self-direction, and if his next teacher fails to win his esteem the results may be disastrous. So, although a sense of his teacher's approval will at all times justly have a strongly stimulating influence upon a pupil's efforts, the wise teacher will hold this in reserve unless needed to bolster some flagging interest or encourage a disheartened worker, and endeavor always to stimulate through less personal appeals.

A far better use to make of this instinct is in connection with the pupil's desire to have the approval of his classmates. A large part of his behavior is inevitably influenced by that consideration, whether the teacher wishes it or not. The problem is to direct the recitation activities along lines that will make the material studied furnish a satisfactory opportunity for winning that approval. To do this means the adoption in some form of what is known in modern practice as the socialized recitation. Some typical examples of this are given later in this chapter. Probably the best evidence that a recitation is really socialized is for the pupils, in their participation in it, to recite primarily to and for each other rather than merely to please and satisfy the teacher. Naturally, also, the unsocial spirit of emulation gives place to a spirit of coöperative participation. Strayer and others have pointed out the inconsistency of setting up social coöperation as one of the chief aims of the school, while retaining the practice of discouraging or even penalizing coöperative work in school. As soon as the pupil is confronted with a recitation responsibility in which a creditable contribution from him will be welcomed by the entire group, his instinctive desire to win their approval is enlisted toward better preparation, especially when he realizes that the unpopular thing will be to fail, instead of to "star," as has formerly been often the case. In the past the pupil who courted popularity has rarely been much disturbed over his poor recita-

tions, but has taken care not to bungle his part in the class play, or fail to do his best on the ball team. The socialized recitation undertakes to capitalize this love of social approval and turn it into a motive for study.

Miscellaneous instincts. In the writer's experience and observation the foregoing groups of instincts furnish the most valuable and serviceable sources of interest available as motives for study. There are, however, other instincts that are capable of good service. The instinct of rivalry and emulation is a powerful factor in the efforts of men and women as well as children. Although it regularly supplies a strong incentive for study, no extended discussion of it is given here, because, in common practice, the tendency is toward over-use rather than under-use of it. Apart from the danger that it will lead pupils toward superficiality, and an emphasis on form rather than on deeper values, its influence is unsocial. Consequently, even in those situations where it performs almost indispensable service, the competition should be transferred as soon as possible from an individual basis to a group basis and thereby socialized.

Imitation is another instinctive tendency that may be profitably used. In the primary grades it is one of the most valuable allies that the teacher has. It may be put to good service while teaching pupils how to study, and in giving them a good start at it under supervision. In the upper grades it appears as a tendency toward conformity with the standards of the

social group, and may be utilized in improving study through coöperative group undertakings. Mention should also be made of the fighting instinct, with the related desires for mastery and independence. If situations can be produced which put a pupil on his mettle, there is no finer incentive than the resultant grim, dogged type of interest that persists and conquers any reasonable difficulty.

In many cases interests are derived from other interests so that sometimes it is not easy or necessary to try to analyze the original instinctive sources. Names that have been applied are mainly for convenience in discussion, and vary with different authorities. The name merely suggests the general form of activity toward which the instinct tends, and that fortunately is capable of wide variation under guidance. Thorndike says, in this connection, "Original nature seems to decide that the individual will respond somehow to certain situations more often than it decides just what he will do." It is the teacher's business to see that the situations which call forth the response are wholesome in character. The resultant interests will have power and can yield service for school tasks only as long as they are an outlet for some instinctive desire and keep to the path it demands. The folly of leaving the path of interest, in an endeavor to be more direct, in reality sacrifices both time and results. A good way of putting this truth is by Cook in *Play Way*, where he says:

The child's hearty interest is a powerful engine which will drag a heavy load eventually to its destination. What though you claim to know where that be, and to know also a shorter road? Is it not better to follow the engine that pulls the train, than to drag it back, even though its route be roundabout?

Illustrative applications

Interest should be many-sided. As was suggested more than once in discussing the serviceability of various instincts, the best and most permanent results are obtained when interest is derived from two or even more instinctive sources. It is true that many pupils continue to prepare lessons in which they feel no positive interest. They are influenced toward this by a sense of duty, by habits of obedience, by the desire to avoid unpleasant consequences, or sometimes even by ideals of scholarship. These influences have great value, to be sure, but the teacher who employs only such negative, or, at best, perfunctory, means of inciting to effort gets as meager results, in proportion to the energy expended, as an engineer would who might attempt to run machinery without lubrication. Sufficient interest to call forth either self-directed or effective study will be secured only when the formal incentives of the classroom are supplemented by one or more elements of positive appeal. For the teacher who insists on having defined a minimum requirement in this respect, there may be suggested the very conservative standard employed by Dr. O. W. Caldwell,

Director of the Lincoln Experimental School in conjunction with Teachers College. He held that pupils in his school should be asked to study only such material as could be made "significant" to them. In other words, it is unfair as well as unwise to set tasks in which pupils see no utility or value, and no teacher has a right to give a study assignment without being sure that enough interest has been aroused to make the task seem worth the effort required.

Since the pupils in any class will differ materially, not only in interests already formed, but also in the character and strength of the tendencies dominant with each child, it is important that the appeal to interest be as many-sided as possible. Utilize as many instinctive sources as can be brought to bear upon the material, and in each of these allow enough flexibility to accommodate differences in temperament and capacity. For example, in the use of "projects," pupils may and should be allowed some freedom of choice, not only as to the particular undertaking for which each is to be responsible, but also as to the manner of developing it, if variation is practicable. In this way he is free to give play to the constructive instinct, the expressive instinct, the investigating instinct or curiosity, or such others as may at the time most influence his choice. This flexibility of appeal is also so well provided for in the socialized recitation that it is worthy of some explanation and illustration.

The socialized recitation. As was suggested in a

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previous paragraph the socialized recitation represents an attempt to utilize the social instincts of children in providing interest and purpose for their school-work. Coöperative activity in groups, inspired by some common interest, is universally chosen by children in their play or voluntary work. Nor is this gregarious tendency peculiar to children. At all ages people not only seek groups for play and recreation, but also for the stimulation needed to carry on their most serious work and study. The familiar quip, that "Browning is a poet who can be successfully read only with a club," plays upon a fact that applies equally to most other study. From the time when the stimulating social atmosphere of the English coffee-houses helped so much in literary production, down to our modern days of study clubs, literary clubs, science clubs, and every kind of learned society, study and learning have drawn their inspiration almost wholly from social stimulation. Since these social factors exert such a determining force upon the mental activities of adults and children alike, it would seem the part of far-sighted wisdom, as well as immediate utility, for the school to make wide use of any legitimate means of enlisting these social responses.

Burnham, in his study of the investigations made regarding the influence of companionship upon individual ability, found that the mere presence of companions caused a remarkable increase over the ability shown by a child when alone. Experimental evidence

was conclusive that a child needed group stimulation for a full unfolding of his powers, and the instinctive hunger of a child for such stimulation is commented on by Burnham as follows:

> The social instincts are so strong in children that if they are so unfortunate as to be largely isolated from others they are apt to create imaginary companions and to live in a dream world of society.

Among his conclusions, this is especially valuable:

> The investigations referred to have chiefly concerned the mere presence or absence of other individuals performing similar tasks. In a true social group the relations are more vital. Each individual feels a responsibility and performs some service for the group.... Social beings that we are, no form of success is so stimulating as social success. When we reflect that under present conditions many of the children in our schools are so placed that a social success is impossible, we see the significance of this point.

The socialized recitation meets this need. It furnishes the opportunity for each child to achieve "a social success," to win the appreciative approval of his fellows by assuming responsibility and "performing some service for the group." Kirkpatrick, in his analysis of the social instinct, names the following tendencies or distinct forms: (1) *gregariousness*, or desire for companionship; (2) *sympathy;* (3) *love of approbation;* (4) *competitive* and *coöperative* activity; (5) *loyalty* and *altruism*. Not only may the socialized recitation furnish an outlet for all these, and thus utilize them in stimulating better preparation and study, but it also heightens the usefulness of many other fundamental

sources of interest. For example, the constructive instinct can be made to function much more steadily and effectively if the result of the construction, preparation, and study is to help win "a social success" and heighten the individual's importance in the eyes of his classmates.

Such a recitation may take a wide variety of forms, dependent upon the subject-matter, type of lesson, the age of the pupils, and the size of the class. The one indispensable condition, as mentioned before, is that the pupils, in taking part, make their contributions and discussions primarily to and for each other, rather than directly to and for the teacher. Both because this can be made clearer by illustration than by explanation, and because other means of developing interest have been rather fully illustrated, most of the remaining examples will show how interest has been provided for study through the use of the socialized recitation.

In history. The type of lesson in history which is usually found hardest to motivate is the review lesson. It lacks the attractiveness of new material, and pupils are not prone to take interest in reorganizing what they think they already know. The spur of an impending examination is the means most frequently relied upon to get a perfunctory interest in effort that is usually limited to memorizing an outline or summary. The example given below will illustrate one successful attempt to secure interest in a history review by socializing the lesson.

The class was ready to review the events leading up to the beginning of the Revolution. The teacher decided to adopt the suggestion of having the class meet as a session of the British Parliament, to discuss the strange things that had been happening in America. A Prime Minister was selected the day before, and, after the popular rôles of Burke and Pitt had been filled, each pupil was allowed to choose how he would contribute to the discussion. Those who had misgivings about being able to make a speech were allowed to prepare letters purporting to have been written by relatives in America, and enumerating events about which Parliament should be informed. The recitation period was too short for the animated and interesting discussion. The pupils who gave a realistic and human touch to the familiar events were rewarded by the frank appreciation of their classmates, while the laugh that went up at the expense of a lazy boy, whose letter, the Prime Minister said, sounded "as if it had been written by the author of the textbook," was more effective than any reproof from the teacher could have been. The following week they met one day as the Continental Congress, but, at their own request, they held weekly sessions of Parliament thereafter until time to meet as a Constitutional Convention.

The results of this type of socialized lesson were especially worthy of note. In the first place, the preparation for a review lesson was the most interesting work of the week. Moreover, the daily study improved

noticeably as the pupils searched for and seized upon events that could be made use of in winning "a social success" at the weekly "Session." The effect in improving their expression, especially in oral language, was also gratifying. Not the least of the good results was an excellent appreciation of the real significance of the American Revolution as a part of a still greater struggle — the long fight of the English-speaking peoples for self-government. These weekly "Sessions of Parliament" probably violated many traditional rules of procedure, and no doubt showed an exaggerated sympathy with the colonists, but the pupils got a far more just and accurate conception of the attitude of the English common people, as distinct from the ambitions of the king, than classes in American history have usually acquired.

The range of possibilities in making adaptations of such a plan to other periods is almost unlimited. Dramatization of events in history are extremely interesting to children, and are well worth doing, even though they take much more time than the extempore style of meeting described above. The socialized "game" device is also successfully used, in which the pupils are divided into contesting groups with certain of their number acting as judges. Some good illustrations of this are contained in the specimen lessons of Simpson's *Supervised Study in History*, a book to which reference has previously been made.

In arithmetic. In no subject has there been so many

attempts to make material "real," practical, and close to life-interest as in arithmetic. The newer textbooks show, both in their titles and contents, modern progress in this respect. The additional suggestions in the books on methods of teaching the subject leave little to be offered. But in making use of all such assistance and "practical problems," teachers need to remember that a problem is not interesting to a pupil unless it is in some way made *his own* problem. The fact that it is "practical" carries small commendation in itself. Consequently there is need of some plan whereby the pupils will make, or at least meet, the problem or material as representing something which must be mastered in order to attain interesting ends. This can best be brought about usually through some type of project work, which may or may not be combined with the plan of socialized lessons.

One way of utilizing social interests in arithmetic has been found satisfactory in the Training School of the Fresno State Teachers College. Miss Daly, the supervisor of third- and fourth-grade arithmetic, believed that a "school store" would be valuable in connection with class-work in that subject. Accordingly the pupils of the 4A section were given the project of collecting the material and getting current prices. The enthusiasm with which they undertook the task was most gratifying, and, within a few days, there was an imposing array of empty cocoa tins, coffee cans, butter cartons, raisin boxes, and a long list of other receptacles. This

material, supplemented by display boxes which various manufacturers were glad to send us, furnished all that was needed in the way of a stock for our store. The fact should be emphasized, however, that the most valuable, and, to the pupils, the most interesting material was that which they themselves brought in and for which they learned the local prices. An inexpensive quantity of "play money" finished the equipment. One simple way of using it is for one of the class to act as cashier, while the others select their purchases, find individually the total cost to see if it comes within their "cash," and then watch the cashier check the amounts and make change. The latter forfeits his position if caught in errors. The possible uses of such an improvised store all through the grades, in making real all phases of buying and selling, from the simplest combinations to business forms and accounts, are surprisingly varied, and we are still finding new ones. Pupils now, in working the exercises of the textbook, frequently criticize the prices quoted there as being out-of-date and incorrect, which at least shows some vitalizing effects in that they think of the work they are studying in connection with real transactions, instead of treadmill exercises unconnected with anything outside of the book. The mere announcement to any class that it will use the store at the next recitation is sufficient to call forth an enthusiastic response, and to demonstrate that there is a generous fund of interest available for such use as the teacher is resourceful enough to make of it.

Another semi-socialized project was in connection with the construction of a swimming pool for the school. An upper-grade class, divided into groups, made measurements of the ground, and, after getting the local basis for computing costs of excavating and cement work, prepared bids on the construction. These were later compared with actual bids of contractors, and the discrepancies discussed. Such plans for making their computations as have significance to them may be drawn from numerous sources, as household accounts, measuring and equipping a playground, keeping books on the school supplies — anything that touches their lives nearly enough to make it seem worth while.

In language. Probably no other subject is so dependent on social stimulus for its interest as language, because our use of language is so completely a matter of social import. We all try to use language well enough to communicate what we wish, and to impress favorably those whose opinions we value. If our command of language is sufficient to accomplish this, and is apparently satisfactory to our intimate social group, we ourselves are very likely also to be satisfied with it. Consequently the best, and frequently the only way to interest a pupil in studying to improve his use of language, is through a situation that will demonstrate to him its present inadequacy for achieving the "social success" he wishes. For such a purpose the socialized recitation is indispensable.

A teacher in junior high school-work, having a class whose oral and written English were equally poor, with no tendency toward improvement, had them organize themselves into a Commercial Club. Every pupil was to associate himself with one or more other pupils, so as to compose a firm, and announce the line of business represented. Their regular meetings were presided over by a chairman, elected for one week only by the Club. Every firm had a representative give an oral report of its transactions for that week. The social opportunity to play the rôle of prosperous business men appealed keenly to their interest, and every pupil, in a surprisingly short time, developed the ability not only to make a straightforward talk, but even to add touches of cleverness. The correspondence between the firms over imaginary transactions was displayed for general inspection, and showed the most careful preparation. One firm, fortunate enough to have as a member the son of a printer, had a meeting at his shop "after hours," where they set type and printed some real letter-heads with which to astonish the rest of the Club. Finally their artistic ability was employed to the utmost in decorating the advertising posters containing official proclamation of the merits of each firm. These posters were so interesting that one of the State commissioners of education came, on special invitation, to see them, along with other evidences of originality displayed by the members of the class. The enthusiasm

in their case was unusual, but it suggests what any teacher may do to stimulate interest in studying how to improve language. By guiding the class toward an organization in which each pupil can earn the reward of an appreciative social response only by improving his facility in the use of language, the teacher can safely rely on the social instincts to furnish all the stimulation needed for the effort.

In geography. The resourceful teacher will be able to plan means of applying these principles to other subjects. The appeal of the problem method, rightly used, has already been discussed in connection with geography. The socialized lesson is also frequently used to promote interest in that subject. For example, the presentation in semi-pageant form of the peoples and industries of some important country, in which they show how they contribute to our own comfort and welfare, affords an excellent feature for a school assembly or a parents' day, and the interest of the pupils in its preparation will stimulate study for many days. It possesses the virtue of permitting either entire simplicity in material and costumes, or greater elaborateness, depending on the resources available or the extent to which other work is correlated.

In literature. It is sometimes difficult to make the study of literature connect effectively with the pupils' interest. Since the chief function of literature should be to improve taste and cultivate wholesome permanent interests, it would be better not to teach it at

all than without interest. While the lack of interest is usually due to wrong selection of material — for reading and literature, above all other subjects, should call forth spontaneous interest — it sometimes happens that a teacher has no choice in the matter, and must do her best to save the class from a positive distaste for certain required reading. Using extracts for dramatization, the assignment of selected parts to individuals for special presentation, and similar devices are frequently employed.

The teacher who organized the Commercial Club in the language class found it necessary to teach *The Lady of the Lake* to an unenthusiastic class. She announced that they would do it into a motion-picture scenario, and vote on what "stars" should be chosen to represent the various characters. Moreover, each pupil was to designate some actual spot within reasonable distance which could be adapted to serve as a "location" for each important setting. The writer confesses that he felt some misgivings lest the classic be cheapened under such treatment, but the evident anticipation of the pupils was such a welcome contrast to their former indifference that it seemed wise to await results. It must be admitted also that these, under the teacher's skillful guidance, were most reassuring. The thorough study of characters was evident from the spirited arguments as to what actor was most worthy to assume a certain rôle, and it was significant that the question almost always was not whether

the part was a proper one for the actor named, but whether the actor was capable of the part. In the discussion, also, of a location for the scenes, the pupils showed much greater familiarity with and appreciation of Scott's descriptive passages than the usual class gets. The plan furnished evidence that it is best to take children's interests as they exist, even if you do not approve them, and make them serve a useful purpose, while at the same time turning them into more desirable channels.

In drill subjects. In the primary grades it is frequently possible to hold interest in drill through the instinctive love of repetition and rhythm. As this weakens it may be supplemented by games and similar devices. The fact that subjects involving mechanical processes which require drill for their mastery are the ones best adapted to standardized measurements has resulted in the production of very satisfactory scales for self-testing. These appeal very strongly to an instinctive desire to beat one's own past record — a kind of self-competition in which the instinct for mastery figures. Pupils who have a handwriting scale accessible will frequently set a goal for themselves on that scale and practice assiduously to reach it. Similarly pupils take an apparent pleasure in climbing up the successive steps and sections of standardized drill cards in arithmetic. All through the grades it will be found effective to use an occasional lesson in which games, contests, and other play elements brighten necessary phases of

drill, but teachers are fortunate in no longer having to depend so wholly upon such devices. One of the best features of the movement which has brought forth standard tests and measurements is its valuable service in making it possible for the motivation of drill to be largely automatic with the pupils themselves.

Chapter summary. There is no real study without interest. If the normal interests of the child are not satisfied through school-work, they will find an outlet in ways antagonistic to it. All interests are based on fundamental instincts, and interest in study can be aroused only when the material assigned is connected with the satisfaction of one or more of these — as curiosity, construction, expression, ownership, or various social instincts.

There are effective means of "harnessing" these instinctive interests, and some of them have been given special names, as the problem method, the project method, and the socialized lesson. The last-named has a double value in that it is extremely serviceable in almost every subject, and furnishes a wholesome preparation for coöperative responsibilities in later life.

The natural interests which children display are often objectionable to the teacher, but it should be remembered that these are the only raw material available and must be handled in some way. Since an attempt at suppression without offering an equally attractive substitute provokes hostility, it is wisest to

make at once the best possible use of them in connection with school-work and, at the same time, gradually guide them into more wholesome channels, both for use as motives for study and for vitalizing better standards of taste and behavior.

QUESTIONS FOR STUDY

1. In the Horace Mann School of Teachers College, the plan is used of having a pupil who shows unusual skill in reading appear before a section of pupils of nearly the same age, but less advancement, and read one or more selections to them. In this way the class is stimulated to strive for a higher standard, and the results seem to show that it is better to have the standard set by some one of their own age than by a teacher. What instincts are utilized by this plan to motivate study, first, for the pupil who does the reading, and second, for the class which hears the reading? Show how the same device could be modified and used in connection with other subjects.
2. One of the most characteristic tendencies of children is toward self-glorification — the desire to borrow "distinction" from almost any source, good or bad, and to plume themselves upon such accidental matters as witnessing a wreck, being allowed to sit in an aeroplane, or receiving a greeting from some popular personage. Such a general tendency must be taken into account in

directing children's interests. Can it be turned into some channel to stimulate study? If so, how? If not, how can it be prevented from interfering with study?

3. "A child in the sixth grade who has followed out several good projects probably has acquired valuable information and abilities which ordinary schooling could not have developed in a lifetime." — Freeland, *Modern Elementary School Practice*, p. 51.

   Show in particular how the above statement might apply to improvement in study. Outline a project the following out of which might yield some such results as those mentioned.

4. Norsworthy and Whitley, in *The Psychology of Childhood*, say, with regard to play, "We see that so-called play resolves itself into the functioning of gradually ripening instincts," and further, "There is no one specialized, isolated tendency we can call the play instinct with definite responses bound to definite situations; rather it should be regarded as the arousal of many instincts combined depending on the readiness of the neurones, the general law of exercise and specially subject to the law of effect." What does this indicate as to the value for the teacher of intimate observation of the children's play?

5. In what sense is it true that there can be no study without interest?

6. Under what circumstances do children prefer difficult tasks and strict requirements? Illustrate by some study undertaking.
7. What objection is there to depending on negative incentives to study, — that is, the unpleasant consequences that can be made to follow failure to study, in the hope that ultimately the pupils will become interested in the subject-matter itself?
8. Many teachers are very successful in utilizing the dramatic instinct to motivate school-work. Suggest ways in which it might be of value for improving study.
9. Dewey, in *How We Think*, says: "Teachers — and this holds especially of the stronger and better teachers — tend to rely upon their personal strong points to hold a child to his work, and thereby to substitute their personal influence for that of subject-matter as a motive for study. . . . In this way the teacher's personality may become a source of personal dependence and weakness, an influence that renders the pupil indifferent to the value of the subject for its own sake." To what extent may the teacher's personal influence be used as a motive without encouraging "dependence and weakness" in each of these grades — second, sixth, ninth? What should always be the aim in employing this motive?
10. Select two or three examples of mischievous or non-malicious disorder that have come under

your observation in the schoolroom and show how the motives that prompted these disturbances could have been utilized for securing interest in activities favorable to study.

11. Discuss, with illustrations, the relative strength and persistence of the interest shown by pupils in assignments arbitrarily given by the teacher, and in those which the pupils have themselves helped to "discover" and formulate.
12. A project may be either individual or social in character; that is, its completion may require simply the efforts of a single pupil, or it may call for the coöperation of a group. Suggest the circumstances under which, in your opinion, each would be the more appropriate type to use for stimulating interest.
13. Educators agree that a problem makes little appeal to the interest of a pupil unless it becomes his own problem. Explain and illustrate what you consider necessary in order that a problem be regarded as a "real problem" by the pupil and not merely an assigned one.
14. Suggest ways in which coöperation from the pupil's parents, or at least a knowledge of the pupil's home activities may be valuable in overcoming indifference toward study.
15. Writers who discuss motivation usually make a distinction between the superficial type of interest secured through incentives and devices and the

more effective kind resulting from genuine motivation. Explain the distinction, in so far as you consider it a valid one, and illustrate the two ways of getting interest.

16. One of the most enthusiastic claims for the project method is that it is "self-motivating." Show ways in which this may be true.
17. It is sometimes said that subject-matter which cannot be motivated should be cast out of the course of study. Give arguments for or against such a proposition.
18. Try to recall the times in your life when you made the most earnest and effective efforts to bring about some improvement in the quality of your language. To what extent was the motive in each case social — that is, the desire to make a good impression upon your associates? What does your experience suggest as to English teaching in schools?

SUGGESTED READINGS

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Strayer and Norsworthy. *How to Teach*, chaps. II and III.
Klapper, Paul. *Principles of Educational Practice*, chaps. XIII and XIV.
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Cook, H. C. *Play Way*.
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CHAPTER IV

SECURING CONTINUED APPLICATION

Stopping too soon. The number of children who make a promising beginning on an assignment, but who give up before results of value are attained, is so great that many teachers consider this the chief cause of poor study. In fact, this belief is so general that on the report cards regularly sent to parents there is usually the item, Application, opposite which the teacher indicates her opinion of the manner in which the child spends his study time. It is but just to state that this lack of application is more often due to lack of interest than to any other one cause. There are, however, many pupils who attack an assignment with excellent intentions, and fair interest, but who find their attention wandering and, after conscientious attempts to bring their wits back to the task in hand, fail to muster enough concentrated effort to win success in study. Moreover, in the border-line cases, where the interest at best is feeble and its growth is dependent upon the success and mastery which persistence alone can give, it is highly important that every possible help to continued application be furnished.

Factors influencing application. Leaving out of consideration in this connection the effect of interest, and

the comparative advantage of free over forced attention in securing sustained effort, there remain certain other factors that exert a determining influence in this regard. So, whether the assignment is one in which the pupils already feel a positive interest, or is of that less attractive but necessary type in which use must be made temporarily of extraneous incentives for attention, there may be, in either case, wide variation in the length of effective application. These factors are, first, the character of the task assigned; second, the standards of the recitation; third, study-room conditions; fourth, the personal factor, differing with each pupil, but capable in every case of great improvement through the establishment of proper study habits. The principles upon which intelligent control of these factors must be based are to be found in the psychology of attention, some laws of which are usually ignored in the making of assignments.

The psychology of attention. It has been definitely demonstrated that attention cannot remain fixed on one point longer than a few seconds. Further attention to that point is given only when something causes the focus of consciousness to return to it. When, therefore, any one seems to give prolonged attention to some detail, in reality his attention has returned to it again and again from brief excursions to other details or objects. A fuller discussion of this fact, with suggested tests or experiments for demonstrating it, may be found in any comprehensive text on psychology. Va-

rious terms and figures of speech are used to designate this vanishing and recurrence of attention. Many writers follow James in the expression "waves of attention," but Strayer perhaps uses a better term in calling it the "oscillation of attention," since that more clearly indicates the swing by which the focus of attention returns repeatedly to some object.

As will be shown later, the connection by which a particular object of study may be kept within this swing of attention depends upon another characteristic of consciousness. This is its inclusiveness — the fact that a number of objects or details may be present in consciousness at the same time, although only one is receiving direct attention. These various figures upon the stage of consciousness may each in turn be sharply illumined by the spot-light of attention, only to have it pass quickly on to some aggressive competitor. The number of these objects that any individual is holding in the margin of consciousness at any given time is a fair index of his mental alertness at that moment. If the field of consciousness becomes reduced until there is no longer opportunity for attention to play from one detail to another, sleep ensues — perhaps as a safeguard against mental derangement.

Elements controlling the swing of attention. It is the character of these things in the margin of consciousness which largely determines whether or not attention shall return to an object of study after it makes one of its inevitable swings away from that object to one of

those in the margin. If these marginal objects are related closely to the object of study, and thus point back toward it, so to speak, the return of attention toward the right point is easy. Its swing is back and forth along what might be called the radii of a circle, with the object of study as the permanent center. If, however, some of these elements in the fringe of consciousness are out of harmony with the matter to be studied, there is danger that the attention may wander far afield. For as soon as it happens to rest upon one of them, the tendency of that object is to bring into consciousness a series of other matters with which it is more closely connected. So the attention is carried along from one to another indefinitely, usually getting farther and farther from the object of study, until some interruption of the series gives opportunity for a recall to duty. The influence of a number of associated elements in holding the attention easily to a central object may be shown by a familiar illustration.

Mr. Brown attends a concert, at which a singer of fair ability is to interpret the songs of a certain composer. Although Mr. Brown has only average knowledge of and interest in music, he expects to listen attentively and hopes he will find it easy and pleasant to do so. While listening to the singer's voice he is conscious also of other matters, namely, a well-played accompaniment, a harmonious stage setting, the appearance, movements, and facial expression of the singer, the presence of a congenial companion at his

side, and an attentive, enthusiastic audience about him. He finds that his attention keeps turning to some one of these various things, but the tendency of each is to direct his attention back to the singer's voice, so he experiences a pleasing variety in the objects of attention while maintaining the appropriate center for it. This harmonious variety that is affording such satisfactory play for his attention is disturbed for a while by one discordant element. He is conscious of a buzz of conversation indulged in by two persons behind him. Whenever his attention is claimed by this fact, his thoughts turn to devising means of silencing it, to gloomy reflections on public manners, even perhaps to suggestions of violence and summary measures, until some other influence about him recalls his attention and he finds he has missed half of a song. Not until the conversation subsides does he find that his attention is again safely and automatically held about the proper center by the harmonious character of the elements present in his consciousness.

The opposite influences are illustrated in the case of the average pupil who has been told to "study his lesson over." He finds in the task insufficient variety for ensuring a return swing of his vagrant attention. He is still sufficiently awake, at least in the beginning, to have his consciousness alert for the variety of elements which the assigned task does not supply. Either his surroundings or his fancy supplies the variety, and in consequence the movement of his attention is

regularly outbound with no provision for a return trip.

"Variety in unity." The necessity of having an assignment furnish this variety of elements converging about a central feature, such as is required for holding the attention, is well stated by Colvin and Bagley in their *Human Behavior*, as follows:

> It seems certain that the more complex a physical object, or the richer in content an idea, the longer attention of a sustained character can be given. The application of this principle to school procedure is obvious. If the teacher wishes a topic to be held in attentive consciousness by the pupil, he must develop it in a variety of ways. When the attention "lets up" in one direction, it will then focus itself on another detail of the topic, and thus the mind will be constantly held within the circle of the subject under discussion. This in part explains the growth of attention and interest as the pupil learns more and more about any of the school subjects. There is always a new aspect that can be attended to when there is sufficient variety in the subject-matter.

Assignments that hold attention. The application of this principle to the assignment of work for study is comparatively simple, and a little analysis of the cases in which pupils show the most consistent and continuous effort will produce valuable suggestions. If one asks a group of teachers what subject or what type of work their pupils are most apt to put uninterrupted work upon during a study period, the reply will almost always name exercises in arithmetic. The reason for this is twofold. In the first place, the requisite variety among closely related details is furnished by the

printed exercises, the page upon which the work is being written, the rules or principles to be observed, and the act of writing. The second reason is the fact that any task involving muscular activity has thereby a great advantage in holding the attention — due probably to the fact that the movements themselves furnish an appropriate variety to satisfy the attention demanded for their direction. For this reason, also, a written lesson in any subject usually keeps the pupils busy without interruption, especially if they do not find it necessary to pause too much while deciding what to write next.

The wrong and right use of writing in study. The very fact that written work absorbs the pupils' attention and keeps them employed has led to its frequent abuse in the assignment of work for study. The most vicious form this abuse can take is in having pupils write practically all the material assigned for study — a custom that is not yet extinct. While most teachers do not go that far in requiring written work, they often commit the same offense in lesser degree by giving assignments which cause pupils to think they are studying when they are merely writing things. Writing is not a substitute for study, and the teacher whose first consideration, in requiring a large share of the preparation of an assignment to be written, is that it is a safe way to keep the pupils busy, needs a new conception of the meaning of study. Such preparation usually degenerates into a mechanical selecting of

material to be copied, and, instead of really learning to study, the pupils waste their time in cultivating a profitless substitute.

If, however, pupils are not allowed to confuse studying a lesson with merely writing parts of it, a proper use of pencil and paper may be a most valuable aid to study. For example, an intelligent taking of notes which represent the condensed results of thoughtful analysis and reflection may not only reënforce study by preserving partial results, but also may help to crystallize thought through the necessity of finding terse, significant phraseology for the notes. The writer still remembers with gratitude the teacher who first taught him how to take notes and make a logical outline of material read. For him, at least, it was the beginning of a new attitude toward study and reading. To go back of the words of an author and seek his purpose, and then test his sentences as to the importance of each in attaining that purpose, formulating concisely at the same time one's own interpretation of the author's efforts — these are important steps in real study which may be inaugurated through intelligent note-taking. A discussion of how pupils may be taught to take notes and make constructive outlines properly belongs in the next chapter, and will be taken up in detail there, but the value of such work in securing continuous attention and application deserves emphasis here.

The fact that the words written should represent

the results of study, partial or complete, instead of thinly disguised copying, makes for greater effectiveness in this respect, because the variety is both intellectual and mechanical, instead of merely mechanical. This insistence, however, that the use of pencil and paper during study periods should be properly directed and subordinated to the true aims of study, should not cause us to lose sight of their importance as mechanical factors in holding attention. The mere presence of a pencil in a pupil's hand, waiting for something which is to be written, has a potent influence in recalling the wandering attention to the task assigned and getting something produced worthy of being written.

Making illustrations. Another means of holding attention, closely related to written work, is having the pupils prepare illustrations of the material studied. It is also, of course, subject to misuse, and, without thoughtful direction, may be an unprofitable use of time. But, properly used, it is extremely valuable, not only for keeping attention, but also for revealing misapprehensions and for clarifying ideas. First of all, it appeals to one phase of the manipulative, constructive tendency which has unusual power for holding the attention. In the second place, it impels a searching inquiry as to the essential features to be illustrated. The variety necessary for the swing of attention is furnished by the three major points of the task — the material to be studied, the effort to visu-

alize the details of this material and devise a scheme for illustrating it, and the manipulative activity involved in making the details correspond to the data furnished by the text or material studied. The possibilities of this device are much wider than one would at first be inclined to believe, and apply to almost every phase of school-work.

For example, its use in history may include the making and coloring of rough maps to indicate movements in colonization, the extension of territory, the daily progress of military improvements; it may require diagrams to show the rise and fall of political issues, the division of parties due to changing conditions, or even the relationship between various parts of the governmental organization and a scheme for showing which is primarily concerned with the developments then under study; or it may deal with the representation of development in transportation, industry, inventions and use of resources. Unless these are taken as special projects by individuals or groups they need not be in any sense elaborate, and may be such as could be produced in a few minutes.

The main purpose of this activity is to furnish a tangible goal in connection with each assignment which will make a continuous appeal to attention as well as require alert, purposive study. Such features of the assignment should, of course, take into consideration the illustrative material already available for the pupils, and the things which they are asked to

prepare should not be anything which can be copied. In short, just as was emphasized in another connection, their results must show evidence of real study and not some substitute for it, however attractive the latter may be in appearance.

Other forms of illustrative work. In other subjects the forms which illustrative work may take are quite as varied as those suggested in history. The widest present use is probably in geography, and even in that subject new application could profitably be made along such lines as illustrated reports by pupils on the industries or customs of countries studied, or the preparation of additional material for the school's collection. Mention has already been made of the class which reproduced the living-room of the Whittier home while studying *Snow-Bound*. A sketch roughly made by each pupil to show how he sees the setting of a literary selection is often a valuable index of his study and grasp of the details. The objection has been heard that this is not literature, which in an æsthetic sense is quite true. But it does ensure a correct understanding of the background and setting such as is essential to any adequate appreciation of the literary qualities of the selection. The finer, artistic qualities of literature probably can best be appreciated through a proper presentation in the recitation, but this in turn is dependent upon a prosaic, intellectual grasp of the significant underlying facts. To obtain these is the province of the study period, and

the making of an illustrative sketch serves admirably the double purpose of getting the attentive effort necessary to secure such knowledge and of indicating erroneous conceptions in time to correct them. The selections from Irving most frequently used in school-reading are especially adapted to such treatment. This device is so valuable in nature-study, hygiene, and, in fact, all science work, as to be almost indispensable for the best study. The necessity of visualization in solving arithmetic problems has already been discussed, and the illustration is a helpful means of promoting it.

One desirable feature of this device is the value it has in suggesting and stimulating the selection of projects by various pupils for more careful and extended preparation. For example, a boy who had made as illustrative work a rough map of his State, on which he had penciled the leading products of each section, thought of a plan for elaborating this into something unique. He talked over his plan with his teacher, but, except for such conferences, did all the work himself, and outside of school-hours. With putty he made a relief map of the State, and upon this he glued the grains, minerals, and commercial products characteristic of each section to form a self-interpreting product map of the State. It took more than a month to complete, but was so well done that it formed part of an exposition exhibit. Other examples might be given of the tendency for these improvised illustrative productions to kindle enthusiasm for thoughtfully planned

and carefully executed projects. In most cases it is not wise for the teacher to press this feature, except to encourage the pupils to make voluntary selections and carry them out. The chief virtue of a real project springs from its spontaneity and the fact that the child regards the resultant problems as his very own. But the custom of asking illustrative work in connection with assignments is fully justified merely because of its effectiveness in holding attention properly through the closely related variety. For this purpose it is usually best not to insist on great care in execution. If only the illustrative work provokes thoughtful study and a satisfactory understanding of the material assigned, the chief objective has been attained.

The problem or question as a means of holding attention. If, in talking to teachers or students, one emphasizes the necessity of variety among related details as a means of securing sustained attention, there is one objection occasionally raised. Some one may say that the most continuous attention ever given is when one is reading an interesting story, and then there is no variety except the mere printed words, such as are to be found even in textbooks. A careful analysis of the factors which make a story interesting will not only answer this argument, but suggest at the same time another method of securing more consistent attention to assigned readings.

Stories are not all equally interesting. A person may, indeed, read a few pages of one and lay it aside with

the remark, "I can't get interested in that." But another may prove so fascinating that it is extremely difficult to lay it aside even temporarily. What has made the difference? It is almost invariably the number of unanswered questions which the author has succeeded in raising in one's mind. Who really took the jewels? Will the hero discover the trap set for him before it is too late? Is the confidential secretary an accomplice? What can keep the daughter from making the sacrifice she plans?

The popular appeal of the mystery story lies in such questions that are hovering in consciousness as one reads, and each takes its turn in the foreground of attention as the lines of the story furnish clues for guessing ahead as to the solution. The actual words before the eyes of the reader form merely the basis and crossing-point for the oscillations of attention. For an instant it flashes back to a past incident of the story and reinterprets it, then speculates on the actions of an absent character at that moment, or tries to forecast a solution for some of the various questions still unsettled. Indeed, the interest and attention may be so vibrant over the outcome of these problems that some readers ignore the lines before them and turn to the last chapter to relieve the high-frequency distraction and thus allow attention to subside to its normal swing.

Raising questions in assignment. The same conditions which hold the attention during the reading of

an interesting story must be approximated in any reading which requires continued attention. This fact is emphasized by Colvin and Bagley in the following sentence from the paragraph already quoted, "If the teacher wishes a topic to be held in attentive consciousness by the pupil, he must develop it in a variety of ways." This development is effective in proportion to the number of questions which it inspires and leaves for the study to answer. These questions arise only after a pupil knows something about a topic, or has discovered that it is intimately related to others with which he is already familiar, so the form which this development of a new topic should take will be the establishment of relationships with known topics and suggestions as to new light which its study may throw on familiar issues. The amount of time and effort required to accomplish this depends largely upon the possibility of finding a close connection between the new topic and questions already formulated by the pupils.

For example, no difficulty is experienced in getting boys to see that the topic, "How the Indians Lived Before the White Man Came," will probably answer questions they have already met in their play or on outings, and their reading with these questions in mind will be correspondingly attentive. Such a topic, however, as Washington's *Farewell Address*, will require much more development of relationships with familiar matters in order to provoke such questions as will ensure anything better than a perfunctory

reading of the assigned paragraphs. The net results of a study period spent by a class without some such reënforcement to help hold attention are so nearly worthless that almost any preliminary effort is preferable to the familiar but futile direction, "Study the next five paragraphs."

The topic mentioned above may be taken as a fair example of material which requires careful assigning. As an illustration of the sort of questions that might properly be developed as a preliminary to a reading of the *Farewell Address*, the following are samples that have been used. Did the events of Washington's administrations indicate that the new Republic was in more danger from outside foes or from internal dissensions? What would be most likely to cause dangers from without? What perils might Washington fear from within? In your reading see if Washington gives any warning you had not expected. In the debate on the League of Nations, parts of this *Address* were often quoted; how much of it do you think still applies to present conditions? With such questions as this in mind before the pupil begins his reading, he has at all times something with which to test every sentence, and something to which every statement can be referred. The consequent play of attention, as he makes now this, now that comparison, results in satisfactory study not only from the standpoint of continued application, but also in the essentials of intelligent conclusions and stimulated interest.

The general responsibility of the assignment. The three ways which have been discussed do not necessarily include all the methods by which the assignment may furnish essential variety for holding the attention. In the original outline of the factors influencing effective application, the nature of the task assigned was put first. This is because the law of variety as a basis for continued attention must be satisfied, and, unless the nature of the assignment conforms to this requirement, the resultant study is proportionately ineffective. The law itself has been frequently emphasized on the preceding pages, because in the average classroom it is so frequently ignored. It may frankly be said that the discussion of practical means whereby the assignment could meet this need has been presented, not merely as an account of the most often-used devices for holding attention through the study hour, but also for the sake of reiterating the principle itself. If the essential responsibility imposed upon the assignment by the law of "variety in unity" is fully appreciated, the teacher will find wide opportunity for versatility in fulfilling it. The only final warning necessary is the reminder that the variety must have real unity, and each detail must be closely related to the central object of study. Otherwise, some element introduced to add interesting variety may have closer associations with foreign details, and instead of returning the attention to the proper field may serve as a distracting force to misdirect it. Properly chosen

variety in the assignment is, however, the solution for most problems of inattention during the study period.

Standards of the recitation. The second factor influencing persistence of application has been termed the standards of the recitation. This is used to denote in general the grade of responsibility exacted and opportunity accorded when the recitation calls for an accounting of results attained in the study period. Business-like preparation in any line is made only in response to business-like requirements, and is not regularly made when something less will suffice. In schools having a departmental organization, so that the same pupils have recitations under different teachers, it is often noticeable that one teacher secures more consistent preparation of assignments than another — a difference not wholly to be accounted for by interest in the subject or the popularity of the teacher.

This factor is difficult to analyze, but, by recalling our own experience as students, we may find it easier to realize how wide a difference it may make in one's thoroughness of preparation of separate courses even in the same subject. In the cases in which pupils regularly make the most complete preparation, there is usually no very conscious feeling of constraint on their part. To them it simply seems the natural thing to carry on their preparation to the point that befits the recitation. Bluntly stated, their tendency is to give just about as much preparation as they feel that the

recitation deserves. To be sure, this is frequently less than the teacher has asked, for wholesome standards in the recitation are of gradual growth, and the teacher's demands are not the only force influencing them.

Causes which determine standards. The opportunity which the recitation affords has at least equal weight with its exactions in setting standards which affect study. It must offer just, or even generous, recognition of effort. Most pupils study not merely to satisfy, but also to please the teacher or their classmates. Consequently a failure to show full appreciation of every worthy contribution is almost as discouraging to effort as to require no accounting on work assigned. As was stated in the preceding chapter, the pupil's interest should be directed toward something more stable as a permanent basis than merely the desire to win the teacher's approval, and the use of this desire should be limited mainly to temporary needs. Such a condition exists when there is need of establishing more business-like standards in the recitation. The first requisite to securing a properly responsive attitude on the part of a pupil is for him to feel sure that the teacher is his personal friend and well-wisher, ready to give all credit due, and to interpret fairly all efforts and results. Appreciative approval, judiciously shown, is a proper, and often necessary, means of developing such an attitude and relationship. When established, this understanding between teacher and pupil makes safe the transition to a gradually

increasing use of the socialized recitation, with its many advantages.

Unless the pupil is thus convinced of his teacher's good-will and personal interest, the latter is apt to be regarded as a mere taskmaster and his assignments given only grudging and stinted preparation. But if the genuinely cordial relationship suggested above exists between teacher and pupils, the latter really welcome a procedure which holds them strictly responsible for assignments that have been fairly understood and undertaken. The tacit understanding that pupils will be held to account for all assigned work is the second indispensable element in establishing proper standards of the recitation. When interest flags, when the task seems long and progress slow, when a resolute effort is needed to recall the wandering attention, the necessary incentive is often supplied by the certainty of a moment of reckoning in the recitation. Probably the most potent and desirable form this can take in the pupil is the feeling that his teacher will be disappointed in him if he fails to complete what he has undertaken. On the other hand, a pupil who has carefully prepared an assignment justly feels, and usually shows, decided disappointment if no accounting is required and he has no opportunity to demonstrate his preparedness. This phase of the recitation need consume only a minor portion of the period, but it furnishes the business-like element necessary to stable continuity in school-work. Great achievement

and notable progress spring only from correspondingly strong interest, but safety in toiling along the intervening lower levels is often dependent upon following the routine of accepted duty.

The third element of importance in determining the standards of the recitation is the influence of the class as a whole upon the individual pupil. The tendency is for each pupil to adopt the level of the group. Moreover, if he finds that indifferent, half-completed preparation on his part does not lower the estimation in which he is held by his classmates, the average pupil will feel inclined to quit at that stage if his study becomes even moderately difficult. The teacher soon learns that any improvement in standards, to be effective, must include the whole group. In any classroom, however, the group standards are determined mainly by the influence of a comparatively few leaders. Many teachers have succeeded in transforming the spirit of entire classes through winning the coöperation of the leaders. By far the best way to lift group standards, however, is to employ the socialized recitation. The line of advance should always be through the strongest interests. Numerous suggestions of this sort were given in the preceding chapter. When once a situation has been developed in which each pupil finds that the esteem of his classmates for him is conditional upon his "making good" through careful preparation of an allotted part in the recitation, the victory is half won. By judicious encouragement and

extension of this means of winning class approval, a powerful ally can be enlisted for all study. A pupil who has earned popular approval by careful preparation in one subject is not inclined to jeopardize it by failure in another — and this feeling may be sufficient to turn the wavering scale in a discouraging moment of study.

Making the assignment improve standards. In the task of raising the standards which the pupils have as to what constitutes satisfactory application, the teacher has an ally that is usually underestimated. This is the instinctive desire of every pupil to do things well. In his day-dreams he never pictures himself as a quitter or a second-rater, but always as performing distinguished service. This attitude characterizes the usual attack upon an assigned task in the primary grades. To one who frequently has opportunity to observe the gradual loss of this assurance, so often to be noted through the upper grades, there is borne in the conviction that most assignments are not properly adapted to preserve this confidence and the instinctive desire to surmount difficulties.

As will be reiterated later, there is nothing more stimulating for a pupil than to enjoy the habitual satisfaction of complete and successful preparation. One of the first considerations in an assignment should be to make this definitely possible. The practice of assigning more than the pupils are expected to complete is ordinarily a bad one, and any assignment that does not enable pupils to know definitely before the recita-

tion how well and completely their preparation has been made, is open to similar criticism. The only justifiable purpose in making such an assignment, namely, to provide enough work to keep strong as well as weak pupils busy, can better be attained through the elastic assignment. This, with its minimum, average, and maximum requirements, enables each pupil to undertake a definite amount of preparation, proportioned to this ability — preferably as he himself estimates it — and to earn the satisfaction of definitely completing what he has undertaken. While enabling every pupil to maintain his self-respect and assurance, it stimulates growth and appeals to his ambition always to undertake more, and thus qualify for a higher group. In all grades the problem of adapting and grading the assignments so as to present almost imperceptibly increasing difficulty, and yet encourage the habit of complete and successful preparation, is one that calls for the best judgment possible. But if such adaptation is consistently held as an aim by the teacher the matter of maintaining wholesome standards, both in the recitation and the study period, will present few difficulties.

Study-room conditions. The influence of the pupil's environment upon his perseverance in study is, of course, familiar to every teacher. Few schoolrooms approximate ideal conditions for study, but, even as they are, most of them surpass the average home in this respect. Only two phases of the study environment

need be discussed here, but these are both of importance to the teacher who wishes to make the wisest disposition of her limited facilities in that connection.

In the first place, the data collected and organized by Burnham verified the impression of experienced teachers that pupils study best when others about them are engaged on the same or similar tasks. This stimulating sense of companionship adds both to their persistence and effectiveness in doing work. The advantage derived from this fact counterbalances many minor distractions that cannot be eliminated from schoolroom conditions. To make the most of it, however, it is very desirable that classes be definitely scheduled for particular phases of study at particular periods, and that all get safely started with the least possible delay. It is usually in the protracted stage of getting ready to start that competitive activities have a chance to originate, and these in turn are likely to be continued or returned to later in such a way as to attract the attention and interrupt the study of neighboring pupils.

The other phase of the study-room situation that deserves attention is the problem of distractions, and how their influence may be neutralized. As a matter of fact, there are many things going on ordinarily in the schoolroom which pupils do not find distracting. It is only the unusual and unfamiliar happenings, or those objects and activities with a potent, instinctive appeal, which capture a pupil's attention when he is

trying to study his lesson. For example, in the rural schools, pupils engaged in study are rarely disturbed by the familiar circumstance of other classes reciting in the same room. Almost the only exception to this is when a grade higher than his own is discussing something in which he is already interested and about which he wishes to learn more.

If, however, changes have been made in the seating arrangement, or any other significant element of the environment has been altered, the probability of having interruptions of attentive effort is increased. The best safeguard against such tendencies is the reduction to routine of those school activities which are essentially mechanical. In fact, to make all matters habitual, which do not suffer in spirit thereby, is to eliminate delays, indecision, and waste of energy. The resultant gain is apparent not only in a more effective utilization of energy along proper lines, but also in forestalling disturbances which "hatch out" prolifically in the idle moments when pupils are not sure what is to be done next, or how it is to be done, or are not yet accustomed to some unnecessary change. Routine should, of course, never discourage judgment and originality; but, as William James so impressively showed in his discussion on the value of good habits, it is the great emancipator which liberates us from the tyranny of trifles and leaves us free to make important decisions and prosecute undisturbed more worthy undertakings.

Another source of distractions is one that cannot be so easily controlled, because many unusual things that happen are not connected with the regular schoolwork. These inevitably occur in any schoolroom, and a pupil who is looking about for something to attend to besides his lesson is usually successful in finding attractions. An attempt was made in the first part of the preceding chapter to illustrate what happens in a case of this sort. As was emphasized then, it is primarily a matter of competition for attention, and, unless the assignment has furnished safeguards, features foreign to the lesson will be victorious. Obviously, the only thing that can be reasonably effective is to prepare against the most probable sources of competition. For example, if a probable danger is distraction from watching some manipulative activity, let the assignment include some phase of constructive work for all, so that glances at what others are doing will, through suggestion, recall each pupil to his own work. This principle of homœopathic treatment can usually be adapted to meet the particular difficulty. A busy pupil is reasonably safe from ordinary environmental distractions, especially if the work upon which he is busy is varied enough to compete with the extraneous circumstances.

Study habits of the individual pupil. The fourth factor enumerated as influencing continued application is the individual one, which is, naturally, the most variable of them all. Without going into the

question of individual differences as the basis for wide divergences in this respect, the important and undeniable fact remains that any pupil of reasonable intelligence is capable of marked improvement over the grade of proficiency in study he ordinarily possesses. This progress is possible through learning methods of attacking a task in the most effective manner, and through acquiring good study habits. Since the next chapter is devoted wholly to a consideration of proper methods of study, and how far their use may be made habitual, a detailed discussion will not be given here. There is, however, one phase of method and habit for the individual that has such vital bearing on the matter of persistence and successful completion of study, that this chapter should not be closed without due emphasis upon it. This feature is the rate of study.

Momentum as a safeguard to application. As a means of improving concentration and lessening the susceptibility to distractions, there is nothing so valuable as momentum in study — the impetus of an aggressive attack that aims to get results in short order. Strayer and Norsworthy say: "An hour spent when half an hour would do is thus not only wasteful of time, but is productive of poorer results and bad habits of study as well." The pupil who is an easy prey to every trivial disturbing influence is the one who is dilly-dallying over his work, and looking around while waiting to get started. A pupil is most fully awake when he is striving for a definite goal, either on

the playground or in the classroom, and the quality of the activity he puts forth corresponds to his mental alertness. From many standpoints there is an advantage in working at top speed, but nowhere is it so pronounced as in holding the attention until work is successfully completed.

The effect is similar to that produced when one is working in response to an absorbing interest. In that case all trivial details are disregarded, and the attention moves swiftly and accurately along the path of vital relationships until the sought-for results are attained. When one sets out to complete any task in short order, the very situation holds a challenge that appeals to his interest. In order to make time count, he maps out a rough scheme for economy and efficiency of effort. This involves the selection of certain relatively important details that are to be kept as centers of attention and goals to be attained. In his subsequent study the swing of attention is quick and sure from one of these to another — in significant contrast to the weak, unstable movement of attention on the part of the loiterer, ready to be drawn from its path by any wayside influence.

Encouraging rapid, aggressive study. The advantages of rapid, aggressive study are so pronounced with respect to the quality and certainty of results, to say nothing of amount, that it seems strange to find so few teachers deliberately trying to encourage and develop it. In fact, the opposite would seem to be true from

the oft-heard injunction to "be sure and put a full hour of study on the assignment." If the assignment has been made in such a way that the pupil knows when he has completed each part of it, and has learned how to test the accuracy of his results, such a time-consuming requirement is no more sensible than if, in sending a boy to the post-office, you commanded him to ride a full hour, for fear he would n't quite reach there. The only excuse for such a command is in connection with an inexcusably indefinite assignment, so that the pupil will consume all the time working up a mass of details, in the hope that there will be included in the collection some samples of what will be required in the recitation. If the assignment is such that the pupil is never quite sure whether he has completed what is wanted or not, the time limit should, theoretically, help by keeping him guessing at it longer. In actual practice it serves mainly to establish habits of "half-work," of loitering over his books, of looking busy, and of employing various tricks of "study camouflage," and prevents him from spending some of his time profitably on some very definite undertakings which he may have in mind.

A far better plan in every way is to put a premium on rapid work. If, as was said before, the assignment has been such that the pupil has understood and accepted certain definite undertakings, it is much easier and more business-like to hold him responsible for these than for any meaningless consumption

of time. The modern world rewards most liberally those individuals who can do, in one hour, or day, or month, what had formerly taken two. The chief training for such accomplishments, as received in school, has usually been by the troublesome pupil who allowed the rest of the class to get a month ahead of him, and then, in two days, crammed up, and, to the teacher's disgust, passed the examination with the others. What we need to develop is a substitute for cramming that will have some of its high-speed advantages without its superficiality and other objectionable features. The old admonition, "Work while you work," had a sound psychological basis, and it is good pedagogy to offer inducements for pupils to do their work not only well but quickly. Especially the pupil who lacks concentration and the power of continued application should be helped to discover that in study, as in riding a bicycle along a narrow path, safety, directness, and success are dependent largely upon momentum — the impetus gained from losing no time in pushing straight toward a chosen goal.

Chapter summary. A serious menace to success in study is the tendency to let down before results are attained, to allow the attention to wander, and to be interrupted by trifling disturbances. Strong interest lessens this danger, but even interest may flag temporarily, and help be needed to prevent failure. Moreover, positive interest is sometimes dependent upon successful progress into new fields, and measures must be taken to ensure the necessary persistence.

In most cases there is needed an effort of will to carry study over these uninspiring levels. The factors influencing continuity of application are (*a*) the nature of the task, (*b*) the standards of the recitation, (*c*) the study-room environment, and (*d*) the study habits of the pupils. In controlling these factors so as to facilitate successful application, the law of continuity in attention must be considered. This law, with its requirement of "variety in unity," sets especial responsibility upon the assignment to make the nature of the task furnish this essential qualification.

The standards of the recitation should be so established as to demand and reward business-like preparation. The study-room conditions should be made, as far as possible, favorable to uninterrupted study, and, when distractions cannot be wholly eliminated, the assignment should attempt to provide safeguards against them.

Finally, the study habits of the pupils should be developed along lines of rapid, aggressive study, not only for better and quicker results, but also as insurance against the distractions that easily interrupt any so-called study which lacks momentum and vigor.

QUESTIONS FOR STUDY

1. What means would you use to teach pupils the meaning and value of concentration in study?
2. How may habits furnish aid in the matter of

continued application? Illustrate with one or two specific habits.

3. When pupils are reading through a selection to collect information, it is an excellent plan for them to prepare rough preliminary headings under which to classify facts as they are found. Discuss the value of this from the following standpoints: (*a*) economy of time, (*b*) interest, (*c*) sustained attention and application.
4. Some teachers allow only a limited time for a hasty reading of a paragraph before the pupils are called on to tell what it contains. Discuss the value of this and similar devices for encouraging rapid reading and concentration, especially with reference to the probable influence on attention and application in independent study.
5. Summarize the arguments for and against having pupils do some written work as a part of their study requirements. Can you suggest ways of meeting the objections without sacrificing the advantages?
6. A class which was studying *Evangeline* became very enthusiastic over collecting magazine cuts and pictures to illustrate the scenes and incidents of the poem. Discuss the value of such a plan as an aid to study, especially in regard to interest, clearness of imagery, and sustained attention.
7. Prepare a list of study questions on the geography of the New England States which you

think would be adapted to holding the attention of a fifth-grade class during a study period.

8. Have you ever known a case of unsatisfactory recitation standards for which the pupils themselves were primarily responsible? What can be done to improve such a condition?
9. Can you justify the claim that a well-chosen project secures more persistent application from children than any other type of school-work? Discuss the basis for such a claim, illustrating with some project you have personally carried through, either in or out of school.
10. Give in outline or question form what you consider the essentials of a "business-like accounting" to follow the assignment suggested in exercise 7 above.
11. What are the differences, from a pupil's point of view, between the "requirements" and "opportunities" of a recitation?
12. From your personal contact with pupils who studied more faithfully and persistently for certain teachers than for others, what seemed to be the reasons for the difference? To what extent do these same reasons influence the study of all pupils?
13. Make a list of suggestions that you think would be helpful in securing "momentum" in study and in guarding against distractions.
14. Show how the use of a standardized silent-reading

test might improve the quality of pupils' study and interpretation in the following particulars: rate of reading; definiteness of aim; concentration.

15. A frequent problem in the study period is the case of the nervous, fidgety pupil who is prone to have his attention caught by the slightest distraction. What special measures would you take to help such a pupil learn concentration?
16. Some pupils are able to study uninterruptedly and effectively in one subject, but only spasmodically in another. Can you suggest means of helping such pupils analyze the reasons for their successful study, with a view to applying the same principles toward improving their study in other lines?
17. Under what conditions may intensity of application become a danger to a pupil? Suggest precautions that you consider advisable in order to prevent overwork and nervous injury to such pupils as you think subject to such dangers.
18. To what extent should individual differences be considered in: (*a*) the standards of the recitation; (*b*) concentration expected; (*c*) insistence on "speeding up"; (*d*) variety afforded in the assignment.

SUGGESTED READINGS

Averill. *Psychology for Normal Schools*, pp. 238–252.
Colvin and Bagley. *Human Behavior*, chap. IV.
Hall and Hall. *The Question as a Factor in Teaching.*
Moore, E. C. *What is Education?* chap. VIII.
Betts, G. H. *The Mind and its Education*, chap. II.
Münsterberg, H. *Psychology and the Teacher*, chap. XVIII.
Dewey, J. *School and Society*, chap. VI.

CHAPTER V

EFFECTIVE METHODS OF STUDY

The importance of good methods in study. Modern efforts are being directed toward developing improved methods in almost every field where greater economy of time and energy is possible. The reasons why methods of study should be included are obvious. But the most important of such reasons are not merely the measurable ones of increased results or economy of time and labor, even though these should be sufficient. It would, of course, be an inexcusable waste to allow a pupil to continue spending two hours regularly on tasks which he could be taught how to do in one hour. In most cases, however, he will not spend the extra hour necessary for completion by a crude method of attack. Instead, his resolution, interest, and efforts weaken somewhere short of that time, and the result is apt to be not only unfinished preparation, but discouragement, distaste, and resentment as well.

These emotional factors constitute the most urgent argument in favor of helping pupils to acquire the most direct and effective methods of study. The maxim, "Nothing succeeds like success," holds emphatically with study, and if methods can be developed that will yield reasonably complete and successful preparation before exhausting the rather limited stock

of interest, perseverance, and energy usually available, the resultant growth of these last-named qualities will make easier the control of all factors influencing study. But although every consideration, both of material results and of the reaction upon the pupils, calls for teaching the best possible methods of study, there is no type of teaching activity so rarely to be observed as that which employs any considerable time in actually helping children acquire the technique of effective study. Even the teachers who give excellent assignments rarely investigate the methods of attack used by their pupils, apparently assuming that proficiency in that respect is inborn, or that it will be acquired by "muddling through somehow."

Systematic study rare. The first difficulty encountered by most teachers who try to find out how a pupil studies is in the latter's surprise at such a strange question, and consequent inability to frame any significant reply. He will probably say that he "just studies," usually meaning that he reads along, hoping to remember at least parts of the material read. If the teacher succeeds in getting the pupil to give a frank demonstration of just what he does when he is studying a lesson, the absence of any conscious plan or system in the matter is usually apparent.

In the light of this, the pupil's reply that he "just studies" seems after all a significant, although overgenerous, characterization of the activity. The obvious conclusion is that, if most pupils are to acquire

proficiency in study, the basis for it must be taught to them as definitely as the basis for any other type of skill with which the school is concerned. Moreover, there is a growing conviction that there are very few activities of the school of as great importance as the development of this particular kind of skill.

Study aims in primary grades. The place to begin teaching pupils how to study is obviously in the primary grades, where the need first arises and where study habits begin to be established for better or worse. Even in schools where the number of grades, or groups within a grade, makes the recitation time very limited, it is often advisable to make the recitation partly or wholly a studying lesson. As has been stated before, pupils in the primary grades will be found ready to fall naturally into the right study attitude — that of regarding the material as furnishing answers to questions, and of guessing ahead as to what these will prove to be.

This attitude, if encouraged and maintained, fosters the corresponding habit of deciding in advance what use is to be made of textbook or reference material, and actively pursuing that purpose, instead of passively and aimlessly trying to "just study." The chief object to be sought in the study training of primary pupils is the establishment of this attitude toward material for study and the corresponding habit of action. Even if no further progress is made in the technique of study below the fourth grade than the

effective attainment of that object, the primary teacher may well feel gratified in reflecting that the essential foundation has thus been laid for all phases of skill in study.

Studying with pupils. If this aim is kept clearly in mind, the details of a study lesson will present few difficulties. A beginning can be made in the latter part of the first grade, usually of a very simple character, and intended to encourage the forward look and conjecture. This applies equally to the reading of stories, to a simple observation problem in nature-study, or to measurements and construction in handwork. Growing facility may be developed in the second grade, but the greatest progress is usually noted in the third grade. This is due first to the fact that the mechanics of reading have by that time been sufficiently mastered that the individual words no longer present such an absorbing series of difficulties, and the attention is measurably free for more connected thought. Moreover, the mental development has reached a stage where problems and relationships are more interesting, and logical thinking is not only possible in connection with reading, but pleasurable as well.

Consequently this grade is a peculiarly appropriate time for frequent use of the thought-guiding study lesson, in which the pupils study aloud with the teacher so that the latter can be sure they are all forming the habit of purposive, aggressive attack. Such activity

has added importance in view of the fact that in this grade also pupils are introduced to material from a broader range of subjects. In their first lessons in geography, for example, their learning how to look for and find out facts is of more importance at this stage than the facts themselves. Consequently, if there is time for any recitation at all, there is time for the open-book study recitation. The most important duty of the recitation in the preliminary phases of any subject is showing how to study that subject, a fact that is valid not only in the lower grades, but all through school-life.

Locating the objective in study. If the foundation of good study has been well laid in the primary grades, its later development will be largely a matter of learning methods and acquiring habits of economy and efficiency. As will be discussed a little later, these naturally fall into groups appropriate to the particular type of task or assignment to be studied. But whatever may be the character of the work to be undertaken, the first step in the procedure should always be the same, and therefore should be made effectively a matter of habit. This may be called locating the objective. It will include a preliminary "sizing up" of the assignment, and a rough estimate of the relative importance of its various parts. The purpose in this is to locate the vital point of the undertaking, to which everything else is more or less tributary, and thus to set rather definitely a goal in the preparation which

must be attained before it can be considered even reasonably complete. At the same time two other important ends are gained by the preliminary estimate — a working basis has been established upon which facts may be organized as they are met, and an adequate relationship has been secured for holding attentive application and guiding it from one detail to another toward the desired end.

Until pupils have acquired some skill in study, this preliminary estimate of relative values should be given attention for a time as a regular part of the daily assignment. But the occasional lesson on how to study should help the pupils learn how to do it for themselves, and every effort should be made to develop independence in this respect. The successful working-out of a project, the carrying-on of a voluntary investigation — in fact, any type of self-directed study — demands ability to locate for one's self at least a tentative goal, and to appraise in advance the relative significance of the details essential to its attainment. Some of the special forms in which this advance estimate will appear may be noted in the discussion on the following pages of the various types of task to be studied.

Planning the attack. Closely related to this first step is another which should be taken in the preliminary stage of all study. It is a brief planning of the attack, a selection of the activities best suited for reaching the goal chosen as the main objective in that undertaking.

It may include decision as to the best source of needed information; certain headings or important condensations may be deemed worthy of memorization — in fact, whatever is necessary to a direct, decisive line of procedure should be included in this preliminary plan. In actual practice this step is not as complicated as it may seem, for the assignment will usually belong rather definitely to one of the types enumerated in the following paragraphs. When the obviously simple matter of identifying the type has been settled, further judgment is concerned chiefly with choosing among a relatively limited number of activities those appropriate to that type of work.

With regard to both the first and second preliminary steps in study, the fact should be emphasized here that the most influential factors in their mastery by pupils are the requirements and methods of the subsequent recitation. It is a truism that pupils prepare for what they think the recitation will demand. Consequently the teacher can exert a vital influence toward inculcating right methods of study if the character of the recitation puts a premium upon such preparation. For example, the first part of the recitation might well contain some such questions as these: What did you consider the most important thing to be accomplished in your preparation? How much of the lesson did you regard as worthy of memorizing for permanent retention? What problems had to be solved to reach a safe conclusion in regard to this topic?

The recitation in which the teacher shows more concern over learning *how* the pupils proceeded in their study, and gives relatively less time to finding out all they remember, or to cross-examining them in an effort to have them tell what he thinks they should have remembered, not only saves time and nerves, but is productive of better results. The proper time, of course, to offer suggestions on how to study, and to give a start in the right direction, is in the assignment and forward-looking part of the previous recitation. But the responsibility for giving such procedure real validity and value in the eyes of the pupils, sufficient to stimulate initiative and independence in its use, rests with the subsequent recitation.

Adapting methods to type of task. In any line of work the efficiency of methods will be dependent on how well they are adapted to the particular work to be done. In other words, they should vary to accord with the results desired, and consequently, each of the four types of study tasks will have its appropriate methods.

These four types are: (1) memorizing, (2) drill work, (3) collecting and organizing information, and (4) solving problems. Occasionally an assignment will involve all these, but one will usually predominate, especially one of the last three. The first two seem closely related, but, as will be shown later, they are, in practice, distinct activities requiring separate methods. The characteristic difficulties belonging to

each type will be noted in connection with the methods of study adapted to meeting and surmounting them.

1. Memorizing

When memorizing is justified. Although modern practices in education have happily freed pupils from the wholesale memorizing that was once the rule, most educators will agree that there are still things which should be memorized. The most important difference is not simply the great reduction in the quantity of things memorized, but the fact that, in the modern conception, memorizing is preceded by thoughtful understanding and appreciation instead of being substituted for them. In other words, only those things deserve memorizing which have been mastered in study or found of such importance as to justify the effort necessary for permanent retention. This basis prepares naturally for the first essential in methods of memorizing.

Rational associations. If the principle that understanding or appreciation should precede memorizing is observed, it will go far toward abolishing the waste and unreliability of mechanical memorizing. But the disturbing possibility that memory may even then fail at the critical moment makes it advisable to add further reënforcement, especially since there are two additional phases of rational association that require no extra time, and are extremely valuable as aids to memory. The first is the association of the material

with the circumstances under which it will be needed. This is the most frequently used "trick" of business men who have earned a reputation for unusual memory. Visualize intently the situation that will demand the recall of what is being memorized. Try to frame sample questions to which this will furnish the needed answer. Keep this visualized setting in mind all the while you are repeating the words. Just as it is much easier to recall a person's name if he is met under circumstances such as you would naturally expect, so the memory of anything is immensely aided if one of its associations includes the logical meeting-place.

The second association that should be made is with the appropriate feeling which the material should call forth. This is of greatest value in memorizing a connected passage of some length, inasmuch as such material is not usually selected for memorizing unless it makes a distinct appeal to the feelings. One does not need the corroboration of psychologists to realize that the best-remembered events in his experience are chiefly those associated with strong emotional responses. A well-known actor once declared that he depended on his feelings to take care of his lines, and that he sometimes found it difficult to repeat "in cold blood" what came easily while "living the part." For example, the pupil who is trying to memorize the *Gettysburg Address* should first of all understand its meaning. In repeating it he should try to visualize the circumstances under which he is to reproduce it so

as to be prepared against the appalling strangeness of seeing expectant faces before him instead of the familiar printed page and desk-top. But what would probably be of the greatest value in this case is to try to feel, as he repeats each line, the way he thinks Lincoln must have felt in saying it. This method not only has a decided advantage over the cold-blooded style of memorizing in the practical matters of quickness and sureness, but its superiority in stimulating appreciation and proper expression gives it double value.

Learning by wholes. Another means of making memorizing easier and safer is the plan of "learning by wholes." By this is meant the practice of repeating the selection as a whole, instead of breaking it up into sentences or stanzas. Although little seems accomplished during the first few minutes, a fair test with careful timing will demonstrate the saving of time on an entire selection. The added safety comes from the fact that the habitual movement in practicing is from one sentence directly to the next, and so on uninterruptedly to the end, just as the required reproduction is expected to be. The familiar plan of learning one sentence or stanza at a time tends to associate the closing words of any unit with the beginning words of the same unit. The frequent result is the pathetically familiar example of the pupil who has forgotten what comes next and keeps going back to the beginning of the preceding lines.

One practical way of using this plan is the following.

After the selection is understood and the pupil is ready to begin memorizing, he should read it through attentively. Then on the next reading, whenever he can anticipate a phrase, he should raise his eyes as long as he can continue without hesitation. At the first uncertainty he should glance back without waiting, and continue reading until he can look away again for a while. By continuing this, the need for glancing at the book becomes less and less frequent with surprising rapidity. Another device is to use a card to cover the lines below where one is reading, and not to expose the next line until hesitation makes it necessary.

2. Drill work

Proper preparation for drill. As was pointed out in an earlier chapter, practice during the study period may do more harm than good unless it is carried on accurately and attentively. Since it is the business of the recitation to supply the knowledge and interest necessary for this, it is a safe rule that practice on any activity should always follow and not precede the recitation on that activity. The frequency with which this rule is violated is the only excuse for stating what should be entirely obvious. Many teachers seem to think that some work on the new lesson should be assigned for study, and depend on the next recitation to straighten out erroneous forms, forgetting that it is far easier to establish a right habit from the beginning than it is to correct a wrong start.

The drill on some activities should be taken care of almost wholly in the recitation, but there remain others on which practice should take place in the study period. For example, the pupil will do some writing in connection with his study; this should certainly be made to reënforce the penmanship work of the recitation instead of counteracting it. The fact that the material he is writing happens to have intrinsic importance only adds to the value of its form. Other things that should have correct instead of incorrect practice in the study period, whether as the main or as incidental features, are such items as the spelling of familiar words, applications in mathematics, punctuation, and language forms in general. The indispensable basis for making such practice in the study period profitable includes a clear knowledge of what the right form should be, and a motive sufficient to ensure consistent observance of that standard until it is made habitual.

The device mentioned in an earlier chapter of having each pupil write every month a sample page which he voluntarily offers as the minimum standard of excellence for all his written work that month, agreeing to rewrite any page that is below standard, works wonders for the habitual penmanship of a class. It is a simple matter to extend this, and have each pupil add to this personal standard of excellence at least one "jonah" spelling word or language form every month, agreeing to atone for every violation as he does with

his penmanship. Care must be taken to keep this within the scope of what the pupils consider a fair self-appointed task, and to which they give willing coöperation.

Setting safeguards against errors. It has been said that half the work of the school consists in unlearning wrong things, most of which are in the form of erroneous or slipshod habits. Careless work during the study period contributes so largely to these liabilities that there is no more important problem in preparing for it than how to safeguard against errors in practice. Such safeguards, to be effective, must enlist the willing, active coöperation of the pupils. Any device of the type mentioned in the preceding paragraph is of that kind, since the pupils set the standard and are their own taskmasters.

The modern idea of drill insists that children be led to realize the value of proficiency in the proposed activity before being set to practice upon it. When this is done and the work properly motivated, pupils are usually eager to know how skill can be most surely and economically acquired. One teacher was extremely successful in securing their earnest coöperation by explaining to the children in simple terms the principles of habit-building, emphasizing the importance of care, and the penalty of allowing exceptions. To illustrate these points she compared the attainment of skill to climbing a hill; every correct performance carries one up a step, but every mistake puts one back

five steps; there is no such thing as standing still and "not counting this time." It would be wise for many more teachers to put the matter thus frankly to their pupils, and show that all skill and proficiency worth having must be earned by faithful effort; that an automatic system of merits and demerits bars the slipshod trifler from ever quite reaching success. Any means of arousing a keener appreciation of the fact that such proficiency and skill are worth the effort they cost should be utilized, from a general campaign like the "Good English Week" movement to the individual privilege of acting as class storekeeper. But when a pupil has chosen some line of practice, he should know that there are no returns on a "part-time" investment, and that during his practice eternal vigilance is the price of proficiency, as it is of many other valuable things.

Distributing time in practice. Another principle of importance in drill is that concerning the economical distribution of time. A new process should be followed up rather persistently until the first stage of familiarity and control is reached. The remaining practice necessary for its full mastery should be distributed over a longer period of time; that is, a few minutes spent daily with systematic regularity is better than more prolonged practice.

The advantages of this plan are twofold. In the first place, a satisfactory degree of skill can be reached by fewer hours of time actually spent in practice, when

it is thus distributed, than when it is bunched into longer or more frequent periods of effort. The only exception to the desirability of extended distribution is when it is of importance to reach a certain degree of skill as soon as possible. In that case it may be justifiable to spend the additional time necessary in practice at once. The second advantage is in the fact that it serves as a safeguard against the danger of stopping practice too abruptly after a fair degree of proficiency is reached. Very many teachers are guilty of neglect in this respect. Apparently satisfied when their pupils show a certain mastery over a process, they leave it entirely for other work and are discouraged to discover, some time later, that the hard-earned ability is lost and that the drill apparently must be done over again.

After skill is first acquired, it seems to pass through a probationary stage, and, unless used with some regularity, deteriorates rapidly. Both teachers and pupils should realize this, and plan to prevent such loss. For example, the first general use of standardized tests in arithmetic showed frequently that there was a serious loss of skill in the fundamental processes through lack of adequate "follow-up" work. Since then there have been developed three or four very effective schemes for using brief periods of practice through the grades until stable results are ensured. Profitable use of the principle can be made in all lines of drill.

3. Collecting and organizing information

An index of skill in study. A large share of the time spent in study is devoted to the task of getting information from books. This type of work, while not usually as difficult as problem-solving, furnishes perhaps the surest index of skill in study. Certainly there is no other phase of study in which there is such a wide divergence, both in the quality of results and in the time spent by children in securing them. It is not strange that this is true. Reading a book may mean so many different things. Its pages contain a thousand details to overwhelm a passive reader who does not make them keep their distance; there are countless opportunities for misplacing emphasis, misinterpreting statements, missing vital connections, and misjudging values. In short, a book is inert material, of which little or much may be made, depending upon the reader and his manner of using it. A student must have real skill to glean from a book only what he needs.

Knowing what to look for. Since it is so necessary to be prepared in advance for effective collecting of information, especial importance attaches to the first step in the study process, which has been called locating the objective. In this type of work it means selecting the prime question which can be answered only when proper information is found, and by which the value of all details encountered may be estimated; that is, the student determines in advance the nature of the

facts he needs for his purpose, so that he can give due consideration to related information, and ignores everything without vital bearing on his question. A librarian once told the writer that there were two classes of children who came to the city library — one who "knew what they wanted to find out," and one who did not. She gave numerous instances showing the marked superiority of the first class over the second in respect to skill in reading. She named one twelve-year-old boy in particular who came in every week to see what new books or articles had come on aeronautics. His first move was a swift skimming of them all, and the quickness with which he determined that one was negligible, because there was "nothing new in that," or selected parts of another for careful reading, was an impressive example of the effects of "knowing what one wants to find out."

No one voluntarily does serious reading without some such definite objective. If a teacher wishes to learn a better way to teach fractions, or how to remove ink-spots, or where to spend a summer vacation, the resultant reading will probably be well-directed and effective, as well as enjoyable. But if the superintendent suggests to the same teacher that reading a treatise on ethnology would be of general value, the resultant attempt might be conscientious, but probably not deserving of the three adjectives used above.

The objection has been made that children frequently do not know what are the most important

things to look for. It happens with all of us that some of the most interesting facts discovered are incidental to our main search, and that we later revise our basis for judging the value of details encountered. Similarly, in traveling, our most valuable and interesting experiences may not have been foreseen in first choosing our trip and its destination. But to start out aimlessly on a journey to nowhere in particular merely to see what will happen to us, however appealing and gypsy-like it may sound in stories, in actual trial soon palls and is as tiresome as it is unprofitable. As a requisite to whole-hearted participation, human nature demands some known destination before setting forth on an excursion, whether in study or travel. So, although children may not set what seems the most important goal, we should not lose sight in this connection of three reassuring facts — the goal they set is far better than none at all or one set for them; other valuable results will be secured incidentally in their quest; and the consequent revision of values will help to set a better type of goal in the future.

The tentative classification. When a teacher suggests to pupils that they take a forward glance over the assigned work in order to determine what is to be the chief object sought, the response is likely to include a number of more or less related questions. These may form the basis of a tentative advance classification. In a statement already quoted, Strayer and Norsworthy say, "In order to thoroughly understand

a book students must seek to frame the questions which it answers." An attempt to tabulate roughly in advance the important phases of information needed leads naturally to formulating such questions as the quotation suggests. These serve not only to give a necessary variety for stimulating and retaining attention, but also to provide logical and convenient headings under which significant facts may be grouped as they are met. These may be revised or entirely changed in the light of new information, but their value is not lessened on that account. An individual who begins seeking information with no definite idea of what he is looking for, and no plan regarding what he is to do with it, will not only miss the valuable experience of having to readjust his plans on meeting the unexpected, but will miss most other valuable results of intelligent study as well.

Teacher's relation to these two steps. It is obvious that the pupils' success in taking these first steps will be dependent upon enough advance familiarity with the general field covered to frame intelligent questions. The duty of the teacher with respect to this preparation is suggested by the process which prepares adults for thoughtful study. The mothers in the district may have heard the name Parent-Teachers' Association, or the fathers may have seen the term Civic League. The probability of any intelligent investigation in either case is, however, still very slight. But if a speaker addresses the mothers on the matter

of an organization, and outlines some practical possibilities, immediately a number of questions arise in their minds which they wish to investigate. They consider the best sources of information, perhaps express their tentative classification in the form of committees, and otherwise decide in advance what they wish to learn and what use is to be made of the information. Similar action may result from a talk before the men on a Civic League. The librarian of that community is asked to suggest sources for very definite points of information, and the whole investigation is directed toward previously chosen objectives. The continuation of such activity is greatly stimulated if they hear other addresses which raise new problems and inspire to a yet broader vision.

The method by which the best teachers prepare their pupils for intelligent, forceful investigation in some definite field is, in spirit, similar to that by which the parents were led. At the beginning of any division of subject-matter, its significance should be emphasized by the teacher in a way that will provoke questions, but leave the answers to later study. This does not mean that the teacher will suggest the questions. That would rob the work of spontaneity, and with skillful teaching is by no means necessary. For example, in history, upon beginning the study of the long struggle over the slavery question a teacher may set forth the situation, involving elements of economic and industrial demands, political traditions, rapid

territorial expansion, disputed States' rights, and race prejudices, in such a way as to make the class alert for the developing problems and ready to question how each succeeding compromise tried to settle the difficulty, how far it really helped, wherein it failed, and whether open conflict was inevitable. In geography a similar introductory talk might serve to prepare for several weeks of study on South America, and might properly include our developing relations with that country, quotations from Roosevelt's estimates of their future, and other material naturally requiring explanatory investigation. After such a presentation the pupils can suggest enough advance questions and sub-topics for their study to supply organizing bases for a whole series of lessons. Miss Simpson, in her *Supervised Study in History*, has very happily called this type of lesson "The Inspirational Preview."

The teacher who strives to develop inspirational skill, even at the expense of inquisitorial activities, is repaid not only in stimulated interest on the part of the pupils, but also in their developing more intelligent direction of their efforts. This should not be misunderstood as suggesting flights of oratory, but it does call for giving at least an adequate preliminary view. The plan followed in some educational textbooks of placing the summary at the beginning of each chapter, matter-of-fact and uninspiring as it may seem, has nevertheless some psychological justification.

Evaluating data. After the main phases of the

information sought have been roughly outlined, the pupil is ready to collect appropriate facts and give each its proper associations. In doing this, he should hold, as the next important rule in this type of study, a critical attitude toward each statement he encounters. The judgment which he passes upon each item may be from either of two angles. In the first place, he should learn to decide how pertinent the information is to his purpose. Skill in this is absolutely essential to rapid study, or effectively "skimming" an article. While growth in this ability is gradual, the fundamental element in the activity is having a preconceived standard always in consciousness as one reads, and slighting everything which does not possess some element in common with this standard. The performance is somewhat similar to that of a boy looking for a lost marble: with the image of it in mind he ignores in his search the countless other objects about him, unless perchance a smooth pebble or a round piece of paper holds his attention for a closer examination. Without this swift appraisal of values as each detail passes under his eye, the reader loses his poise; having no means of holding the host of details at a safe distance, he is overwhelmed. That pupil is, indeed, to be pitied to whom all sentences read seem to have equal value; who surrenders to a paragraph and drifts over it like a mariner without rudder or compass, and, after being tossed from one sentence to another, finally comes ashore at the end possessed of only chance flotsam.

While the rapid sweep in reading is to be encouraged, along with its swift evaluation of details, there are often times when judgment must be passed more deliberately. If there has been collected a number of facts bearing on a certain topic, the matter of deciding their relative importance requires careful consideration. Most pupils probably never pass this stage in their study. The recitation should, of course, provide for testing, and, if necessary, revising, these judgments. But it should also give training looking toward independent activity of that sort on the part of the pupils. This is one of the most important functions of the how-to-study lesson. Indeed, in the primary grades, the foundation for rapid thought-gleaning must be laid in this way. Learning how to locate the key sentence of a paragraph and to determine its importance for the main investigation is a slow and often difficult process. Its value justifies the use of many periods spent in studying with the pupils.

The critical attitude. Along with collecting data should go a critical attitude as to the worth and reliability of the material found. When one textbook in a subject constitutes the single source of information, the opportunity for comparing and judging authorities is very limited. The natural result is that the children are inclined to accept without question whatever they see in print. An attitude which questions the reliability of an authority and looks for corroborative evidence, either on the facts or the trustworthiness of the

author, is of such importance to intelligent citizenship that some way should be found to develop it. Supplementary texts, reference books, current magazines, newspapers, and even personal interviews with local officials, travelers, or pioneer citizens, all furnish such valuable opportunities to compare various sources of information that practically every school can do something in this line.

This does not necessarily mean that immature children are competent to criticize the scholarship of the author of a textbook. But if two authorities disagree, it is quite within the children's province to investigate as to which is more reliable. Especially is it important for them to develop the habit of determining for themselves, whenever possible, the accuracy of information, since training in study should look not merely to the daily preparation of lessons, but to the permanent need for critical investigation as a lifelong adjunct of citizenship.

The proper taking of notes. Few practices in school are subject to so much misuse, and yet possess such valuable possibilities, as note-taking. The chief indictment against the notebook is the fact that it so frequently serves as a specious substitute for study. Such customs as copying a large part of what the teacher says in recitation, whether fully understood or not, as portentous words to be conned just before examination time; or copying, practically *verbatim*, headings and sentences from the textbook to be offered

with some feeble comment, if any at all, in the recitation — these have justly provoked criticism which has gone so far as to question the value of any note-taking whatever. There are, however, certain ways in which a notebook may guide and stimulate right methods of study as no other device can, and on that account its proper use is fully justified. But in order to avoid having its usefulness counteracted by objectionable practices, definite training in note-taking should be given by the teacher in the study lesson.

In the first place, as implied above, the method of taking notes should strengthen right methods of study. It can do this in two ways: by guiding effort along proper lines, and by preserving the partial results of study in the most convenient and valuable form for further use. This can best be accomplished by having the notebook reflect the steps in collecting and organizing information as already partly given. It will include first of all the assignment or field of investigation undertaken, with such directions, suggestions, and questions as the teacher and class shall have agreed upon in the forward-looking part of the recitation. Reference to this occasionally will help to keep clear the exact topics assigned. Next it should reflect the selection of the main objective, and the tentative classification under it. It will usually be found most convenient to have the items of this classification separated widely enough to leave space for writing in the data as it is selected later. This constitutes the preliminary

outline and guide, and serves as a sort of filing cabinet for information as it is encountered, evaluated, and classified in study. The student thus has his data ready in classified lists for such later use as may be desirable.

It will sometimes happen that the organization of material must wait until the character of data from different sources is known. For example, in the division of work for a group undertaking, each pupil will take certain references and search them for data, the organization of which will be done in the group conference or recitation. In such a case, the taking of notes will seem to be of a different type, although logically it will be the same procedure as for a single division of the general classification. The tendency in making such a summary of the important facts in any reference will be to copy the paragraph headings, if the book has them. This again is a substitute for study — and a poor one at that; for headings may be ambiguous and even misleading unless interpreted in the light of the discussion following. The only safe method — the one with which training in such study should begin — is to locate the key or topical sentence. This will correct or corroborate the impression given by the heading. The note taken in that connection should usually be neither the sentence nor heading, but an individual comment or restatement that will reflect the student's estimate of the importance of that discussion for his investigation.

The task or game of locating the key sentence of a paragraph or story is one to which pupils, as low as the third grade, eagerly respond. It is so important as a basis, both of later note-taking and rapid reading, that it should receive generous attention in the study lesson. After a guiding question or two, such as, "Which sentence tells what this paragraph is about?" or "Is there any sentence that we could not do without in this paragraph?" even young pupils very quickly grasp the idea of relative values in a paragraph. When skill in this process has developed to the point where pupils can very quickly "husk out" the significant points in a series of paragraphs, the notebook is not only a justifiable but very desirable place for recording the results of this achievement.

Making outlines. The final outline of material collected should embody the results of the completed organization. With his array of data before him, roughly tabulated and grouped under the headings of his tentative classification, the pupil is then in position to decide upon such revision and regrouping as the situation seems to require. Not infrequently the results of his investigation lead to a new sense of proportionate values, and a correspondingly new general heading is chosen under which the material is to be organized. Since the function of an outline is primarily to indicate organization, the more faithfully it reflects relative values and subordinations among the data, the more valuable it is. On that account the character

of the material itself and the purpose for which it is collected should be the guiding considerations in preparing an outline, rather than fixed rules of any but a very general nature. If the preliminary planning was well considered, the matter of reducing the final organization to outline form is comparatively simple. Its value, however, should not on that account be underestimated. As a means of enabling a student to sweep into one view an otherwise incomprehensible mass of details; as a stimulant to that final, clear, definite grasp of relationships which might otherwise elude him; or as a preparation for a coherent, concise report, either oral or written, the making of an outline is well-nigh invaluable.

Making and mastering a synopsis. As a final step in making the results of this type of study readily available whenever need arises, it is wise to master a convenient summary. This will be much briefer than the outline just discussed, and may incline to the practical rather than the strictly logical, but its value as a feature of study is not limited merely to its utility in recalling material already mastered. The preparation of the synopsis requires judgment as to the features most apt to be called for, and a corresponding conjecture as to the situation out of which the need will come. This thinking reënforces the previously made organization, and at the same time is such an admirable preparation for easy recall that the task of learning the synopsis itself is made easy. It should not

be forgotten, however, that this final summary is primarily for the convenience of the pupil. Therefore its length and character should be such as he finds most serviceable and easy of control.

Chapter summary. See close of the following chapter for a summary covering Chapters V and VI.

QUESTIONS FOR STUDY

1. "Many a whole recitation, also, may be occupied in discussing how lessons have been prepared, the teacher not seldom presenting her own way in detail, and allowing her pupils to compare theirs with it. Abstract theory about method of study will thus be avoided." — McMurry, *How to Study*, p. 298.

   Select an assignment and show how it could be profitably followed by such comparison and demonstration of study methods as are suggested above.
2. McMurry, in the same connection, expresses the belief that one fourth of the school-time might well be devoted to methods of study. To what extent, if any, do you think that the usual subject-matter would be slighted by such a practice? Give reasons.
3. Using as an example the poem, "Breathes there a man with soul so dead," tell what rational associations you would try to develop with pupils, and what other preliminary work you would

deem advisable before having them try to memorize it.

4. What mental steps must be taken by a child in selecting the key sentence of a paragraph? Select a paragraph appropriate for third- or fourth-grade pupils, and tell what you would do to guide them in taking these steps.
5. Is there danger that the pre-view and advance information necessary for a preliminary classification may dull the pupils' interest in further reading along that line? Do you read with greater interest in familiar or unfamiliar fields? Ask pupils what lines of reading they prefer, and why.
6. Most writers agree that pupils should maintain a "critical attitude" in their study. What do you understand this to mean? To what extent should it be encouraged in their reading of fairy stories and literary selections? In their study of the official textbook in geography or history?
7. What reasons are there for the statement that the task of getting information from books "furnishes perhaps the surest index of skill in study?"
8. Give what you consider the typical methods of study pursued by pupils in doing "home work." To what extent and how should the teacher try to alter these methods?
9. Select some simple reading material for pupils

beginning the second grade, and tell what procedure you would follow in "studying with them."

10. What are the differences between the methods pursued by one who is trying to "look up" something at the library, and those followed by pupils "doing" an assignment? How do the results differ?
11. Why is learning by wholes not only more economical but safer than piecemeal memorizing? How would you prove this to doubting pupils?
12. It is often said that drill work is largely a waste of time unless permanent coöperation is secured from the pupils until the desired habits are established. Illustrate this by some such work as spelling, and suggest ways of securing this permanent coöperation.
13. An enthusiastic lecturer, in discussing the advantages of project work, declared that a child's methods of investigation would take care of themselves if only he was sufficiently intent on finding some needed information. Would you fully accept the above statement, add some qualifying conditions, or reject it as misleading? Give reasons for the position you take.
14. Tell what suggestions you would give pupils in order to help them determine for themselves what was the best method of attack for any particular assignment.

15. To what extent and in what form would it be advisable to inform elementary-school pupils of the psychology of habit-building, as a means of making their practice more intelligent and effective?
16. To what extent is it true that any one voluntarily searching for information has, more or less consciously, a tentative classification under which to group facts as they may be found? Illustrate this in the case of a boy who is reading up on aircraft.
17. In teaching eighth- or ninth-grade pupils how to take notes, name the various dangers you would attempt to guard them against. Suggest some instructions you would give for that purpose.
18. Courtis, in discussing the results of experiments on drill in the fundamental operations of arithmetic, says: "Ten minutes a day, day after day, spent in intense, purposeful, snappy practice has proved adequate to develop proper habits of speed and accuracy. Why use more?"
    Discuss the bearing of this quotation on (*a*) the requirements set by the teacher for drill work; (*b*) the kind of practice which pupils may be induced to choose voluntarily as the easiest way of getting results.

SUGGESTED READINGS

Strayer and Norsworthy. *How to Teach*, chap. v.
Davis, S. E. *The Work of the Teacher*, chap. viii.
Simpson, Mabel E. *Supervised Study in History.* (See Table of Contents for "Inspirational Pre-Views" and "How to Study" Lessons.)
Bagley, W. C. *The Educative Process*, chap. xxi.
Hall-Quest, A. L. *Supervised Study*, chap. vii.

CHAPTER VI

EFFECTIVE METHODS OF STUDY (*concluded*)

4. Solving problems

Peculiar nature of the task. In a broad sense, the greater part of school-work should be connected with the solving of problems. The popular view has been that the chief concern of the student was to get information. But no one collects information strictly for its own sake. In most cases the information seems worth collecting because it is necessary, immediately or ultimately, to the solution of some problem. So it is the problems, especially those that have vital importance in the eyes of the pupils, which give significance to school tasks. But many school assignments are more directly concerned with only a part of the ultimate process, and accordingly, for convenience, were discussed in the preceding chapter as separate units of study activity. There remains to be taken up in this chapter only the distinctly characteristic steps of problem-solving — the final stage of the process in which the results of the preceding types of study are used as auxiliary to the achievement.

Probably the best-known definition of a problem is the one which calls it "an obstacle in the path of thought." The nature of the task of solving a problem would, however, be better suggested if it were called

"an unbridged gulf in the path of thought." For the task is to supply a missing connection, a needed element whereby the path of thought is completed or extended to new territory. In the study of geography, for example, the problem may be met as to why the climate of the Pacific States is so much milder than that of the Atlantic States in the same latitude. Various suggestions may be brought forward to see if the needed explanation can be supplied. One by one they may be tested, but break down under trial, until finally one is found which stands all tests, and forms a sound basis for reaching a safe conclusion. The process is even more distinctly seen in the mathematical type of problem. This, stripped to the barest form in which it appears, consists of something given and something required. The "something required" definitely indicates the part of the path which is missing — the place where a continuous connection must be established. If the nature of the process involved in problem-solving is clearly grasped, it will be easy to understand the nature of the steps to be taken in performing this activity as a type of study.

Locating the vital point. It will be obvious from the preceding paragraph that the first step in logical problem-solving is to determine the exact point where the connection is missing. It includes a survey, so to speak, of the known portions of the path up to the last sure footing and a glance beyond toward the desired conclusion, with a conjecture as to the character and

extent of the material needed to supply the lack. Teachers of mathematics will emphatically agree that the great difficulty in teaching pupils to solve problems is to get them to wait until they know precisely what is given and what is required before plunging in and trying to find a solution. The need is equally great, though not always so apparent, with other kinds of problems. The pupil who carries his preliminary survey to the point where he can say, "As soon as I find out two things I can solve this problem," is already half done. In other cases he may substitute "try out" for "find out," and the number of things may vary, but any amount of time necessary to locate the vital element of the problem so definitely is well invested.

Mobilizing data. The next move is to bring together the data upon which the desired conclusions may be based. This step may vary widely, in the time and effort required, from a simple rehearsal of known details to extended work in collecting and organizing information sufficient to be rated as a study unit in itself. If the problem is inductive the data will consist of all the individual details with apparent significance for a general conclusion. But if it is wholly or partly deductive in character, the data will include such general principles as seem to have value for the interpretation and disposal of particular details in the problem. The plan of trying to have pupils distinguish between the two types in study seems, in actual prac-

tice, to have little utility, and tends to add an unnecessary element of formality. If the nature of the problem is clearly seen, the children naturally select the appropriate kind of data. The rather strictly inductive or deductive type of development has each in turn its place for emphasis in the recitation, but such considerations may safely be left in the study period to the shaping force of the problem itself.

The chief need for care in assembling data comes from the tendency of pupils to be satisfied with too few particulars. The danger in an inductive lesson of generalizing on insufficient data is well known, but there is equal danger of error in a deductive exercise if there is insufficient consideration of particular facts. A boy who undertook to explain why the interior of Florida was so thinly settled had difficulty because he noted only the familiar items of surface, soil, rainfall, and temperature, neglecting the peculiar fact of drainage. Even in the very definite field of mathematical problems, mistakes are due quite as frequently to disregard of some phase of the details given as to wrong selection of principles. In general, the best means of ensuring adequate consideration of details is through the step of verification, as will be set forth under that topic.

Keeping inferences tentative. As soon as the examination of data begins, inferences and conjectures immediately occur to the pupil. We have all experienced the difficulty of reserving judgment when the

first facts noted seem to point to the desired conclusion. With small children it is usually best to test such an inference at once, as they are not inclined to look earnestly for other possibilities until the first attractive one has been tried and found wanting. But with older children, the attitude of deliberation should be encouraged. To withhold judgment and keep the suggested conjectures tentative until the data are reasonably complete, not only saves time in most cases, but also prevents overlooking other and perhaps sounder inferences in the haste to apply the first one. As a permanent possession, the value of the habit of reserving judgment and impartially weighing all suggestions before reaching a conclusion is great enough to warrant especial emphasis upon it in study training.

Testing hasty conclusions. All children are prone to "jump at conclusions." This should be accepted as a normal procedure until some degree of deliberation can be developed. The tendency in itself is not so disturbing as the disposition to be satisfied with these hastily reached conclusions. On that account it should be made the invariable rule that every conclusion reached in study is to be tested by giving it a new application, or seeing if it harmonizes with additional data. Just as the habit of carefully "checking results" in mathematics develops accuracy, confidence, and independence, so the application of a corresponding test to all problem-solving activities will prove beneficial in a similar way.

Making verification complete. The fact should be emphasized that the most vital step in problem-solving is that of final verification. No matter how brilliantly the other phases have been handled, unless there is strict verification the results are never quite trustworthy. On the other hand, even clumsy and illogical procedure is atoned for if every conclusion is carefully tested, and the data faithfully reëxamined until finally an inference is reached which admits of complete verification. Such methods may consume extra time, but that, important as it is, must not always be given first consideration in study training.

Just as "the proof of the pudding is in the eating," so the final test of a solution is in the way it works. In order to help make the verification complete and final, it is often advisable for the teacher to suggest definite ways of using it. These may be of a general sort, as, "Can you find any instance in which your conclusion fails?" or, "Can you think of any other explanation that would work as well or better?" Usually, however, a special test, appropriate to the particular problem, is better. It is in this process that any inadequacy in the original data should be exposed. If pupils show a marked tendency to ignore important details, verification should be required which strikes directly at this point. Children are usually satisfied with any solution that works, and the one way of compelling sufficient consideration of data to warrant the conclusion is to propose a plan of verification which will demonstrate wherein the unwarranted inference breaks down.

5. General measures of economy and efficiency

The use of general rules. Most of the foregoing discussion on methods of study has dealt with the special ways in which the procedure should be adapted to the nature of the task and material. There are also features common to all types of study, and these are governed by the principles which apply to mental work in general. Consequently any general rules which embody these principles are of constant value, not only for the immediate task undertaken, but as indicating also the lines along which study habits should be established. The remainder of this chapter deals with measures of such a character.

"Warming-up" and the "flying start." A considerable part of the study period is regularly wasted in getting started. This waste has a tendency to continue in various forms, as distractions are likely to originate at this time which persist in their disturbing influence. The best insurance against all the dangers that threaten a safe beginning on a study task is to make that beginning a vigorous, active one. Mention has previously been made of the safety that comes from momentum. The sooner this is acquired at the beginning of a study period, the greater is the probability of successful study. Psychologists recognize a "warming-up" period at the start of any mental effort. This varies in length, but work does not reach full efficiency until after the warming-up is completed.

The time necessary for this is dependent to a considerable extent upon the vigor of the attack. Indeed, some pupils begin so leisurely that they never complete the warming-up stage during the study period.

In view of its many advantages, both defensive and aggressive, the "flying-start" habit is an extremely important one to cultivate. The responsibility for this rests primarily with the recitation, and, as was set forth in an earlier chapter, the best kind of recitation furnishes the necessary warming-up, inaugurates an energetic start, and merges without a break into the study period. But where there has been a break of any kind between the recitation and the time for study, special measures should be used to make a prompt, aggressive beginning the regular procedure. A routine signal device, comparable to starting runners on a race, is sometimes used with success. The essential thing to strive for unfailingly at the outset of a study period is a beginning marked by cheerful confidence and good-humor, but at the same time by business-like energy and alertness. This is a matter calling for frank explanation in order to enlist the coöperation of the pupils. The very term, the "flying start," always appeals to them as a study slogan, and when it stands for a distinct saving in time and effort, it automatically assists in making the procedure habitual.

Setting a premium on independent work. Frequent reference has already been made to independent self-direction as the goal in study training. Its value for

later life is obvious, but some of the advantages of independence in schoolroom study are not fully appreciated. As long as the child is expecting to call upon the teacher if serious difficulty is encountered, his maximum ability is never quite put forth, and development is correspondingly short of what it might be. Emerson's essay on *Self-reliance* is a storehouse of stimulating thought in this regard.

The study period should be planned and supervised in such a way as to put a premium upon independence. If a beginning is not made in the primary grades, it is very difficult to get the pupil to think of the task as his very own, instead of something to be done with and for the teacher. One excellent supervisor of second-grade classes offers special recognition to those of her pupils who succeed in preparing a lesson without asking a single question during the study period. Children make more blunders in that way, but frequently learn more from their own blunders than from correct work for which frequent help is required. The writer is ready to admit the possibility of carrying this too far, but very many teachers are inclined to err on the wrong side of the line. The one compensation in the rural school of many grades is the fact that pupils develop independence in their study. The same advantage may be added to the others possessed by better graded schools if the teachers in the latter will make the encouragement of independence a definite objective.

The individual time-record. The device of having pupils keep time-cards on their day's activities has several excellent features. An effective form has a column for each subject to be studied and an additional column each for sleep, meals, play, and idleness. At the top of each column the pupil puts what he considers a fair allotment of time for that particular thing. Along each horizontal line below he enters daily under the appropriate heading the actual time spent. One of the unexpected revelations to the pupil is the way the minutes count up in the last column. The fact that he has made a kind of systematic disposition of his time, and is to record daily his deviations from it, has a strong influence in favor of systematic habits. The card also stimulates intensive study and concentration, as the pupil is influenced more than he realizes by his desire to complete his work within the time he has already allotted for it. Finally the device has beneficial effects not directly connected with study, in that the daily record of time spent in sleep, meals, and play calls the child's attention to deficiencies in any of these which would otherwise pass unnoticed. Since the ultimate aims of a health crusade and plans for more systematic study are convergent, the time-card may well be utilized in both connections as helping the child take his first steps in self-engineering.

Regularity of environment. The principle of systematizing the details of study should be extended to cover also the circumstances under which work is done.

Whipple, in his collection of rules on *How to Study Effectively*, has emphasized the value of establishing both a "place-study" habit and a "time-study" habit. Many students have by trial convinced themselves of the greater ease of preparing lessons according to an habitual time-and-place schedule, even going so far as to compare the resultant mental efficiency to the physical benefits accruing from regular hours of eating, sleeping, and bodily activity. Whatever may be the force of other factors contributing to this efficiency, there is one entirely sufficient in itself and of unquestioned validity, namely, the comparative absence of distractions in an habitual environment.

When a pupil tries to do home study, a regular time-and-place schedule for doing it is absolutely essential to any certainty of results, as parents will readily agree. In the study time at school, while there is not the variety of competition to distract the attention, any change in the environment tends to make application more difficult. If, for example, a pupil is accustomed to study history while another group is reciting arithmetic, he will find application more difficult if the other group recites another subject instead. The explanation is simple. One's attention instinctively turns to any new element in his environment, and the significance of that must be more or less definitely appraised before he can fully settle to prosaic tasks. But if all important elements of one's surroundings, including time, place, and companionship, are familiar,

habit can then exert its force toward beginning the activity that has become associated with that environment. The "time-and-place habit" in study is always earnestly recommended to college students by writers and instructors, but its value probably increases all down through the grades, as primary teachers will realize who know how disconcerting to small children even a slight novelty in the environment may be.

Under-learning and over-learning. Most pupils are unable to produce results in the recitation proportionate to the time spent in study because of the waste of under-learning. They almost get needed information clearly in mind, but stop while it is still so befogged as to be unreliable or misleading. They think they have solved problems, but fail to reach a point of unquestionably proved results, or even of knowing precisely how those were obtained which they have. They almost master some important facts to be remembered, but reproduce them, if at all, in a form so mangled and incoherent that they are useless unless completely rehabilitated. Many recitations are spent almost wholly in the task of piecing together these fragmentary offerings, or in the even more discouraging labor of trying to build upon an unstable and insufficient foundation. Pupils should learn that from the standpoint of actual results such study is a wretched waste of time and effort. The workman who carries his burden *almost* to the top of the wall might have saved his strength by leaving it on the ground

from the first. It is the last determined blow, or the last persistent ounce of pressure, which cracks the nut; without the completing effort, all preceding pains would have been wasted.

If the need of complete mastery of certain essentials in a study lesson is properly presented to pupils, they respond readily. Even the pupil who does very little studying is anxious to get the fullest possible credit for the labor invested, and so can be interested in the practical advantages of doing well what is done at all. Pupils who make it their rule not to consider preparation complete until certain points are known positively are not only certain to participate more creditably in the recitation, but are also learning a new satisfaction born of self-respect and independence. Just how far learning must be carried to ensure this mastery varies with individuals, and it is for each one to discover his own point of safety. Some writers advise over-learning to a slight degree as precaution against subsequent "shrinkage." At any rate, the danger that pupils will voluntarily over-learn essentials is so slight as to be negligible, while the waste of under-learning is an ever-present and demoralizing menace to efficient study. Consequently, in doubtful ground between the two, safety lies on the side of thoroughness.

Final try-outs of preparation. As a means of reassuring one's self as to the complete mastery mentioned above, it is an excellent plan to take the last few minutes of study for giving the preparation a final

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try-out or checking-over. Furthermore, this procedure has especial value for bringing to light important items that were slighted in the original preparation, and that otherwise would have been lost before they could be used.

The writer once made a systematic trial of this plan with two successive classes in foreign language. Being in a position to supervise their study as well as hear their recitation, he gave a signal just ten minutes before the end of the study which meant that no new translation was to be studied further, but that the remaining time was to be spent in a rapid try-out of the preparation already made. In both cases there was a very marked improvement, not only in the quality of their preparation, but in the amount they were able to cover as sight work in class. After two months it was found that they could make so much more speed in the try-out of their preparation that five minutes sufficed. After they passed on to other teachers, various members of the classes voluntarily reported their continued use of the plan and its extension to other subjects. Since then the writer has read reports of similar applications of the same principle, and always with confident assurances of its value.

Personal study rules. There have been published various lists of study rules, most of which have very practical value. From among these rather extended compilations, many principals have selected those rules that seemed to have special value for their school

and its conditions, and have arranged these for the use of their pupils. Such a plan is often productive of marked improvement in study. The longer such lists of rules are, the less effective they are likely to be, since the pupil, being unable to remember and use all, is inclined to make very little use of any. At the same time, in selecting rules for the use of pupils, the teacher is reluctant to omit any one which seems to have especial value for certain individuals in the class, and, by the time all needs are provided for, the list is usually of some length. This difficulty can be satisfactorily met and additional advantages secured by having each pupil prepare a personal list of study rules.

The material from which the pupil makes his selections is a more comprehensive list presented by the teacher in some such form as that summarized at the close of this chapter. The teacher should go over the full list of rules with the pupils, explaining the reasons for each one. After the pupils understand the meaning and use of them all, they may be given a definite number of days in which to try the rules, one by one, in their study. At the end of that time they are to select a personal list of those especial rules which they have found the most helpful, or of which they feel the most need. The trials made of this plan indicate that the selections are usually rather well made, and, better still, the pupil, after selecting the rules, feels some personal responsibility for using them. Such a list is short enough for memorization, or at least for a ready-

working familiarity, and does not have the indefinite, general character of the longer type. Moreover, an unobtrusive suggestion or two will usually secure the inclusion of those especially needed by that pupil, even if he has not of his own accord made a wise choice. Some such plan for inducing pupils to attempt to systematize their study becomes vitally important by the time high school is reached. Whatever form the arrangement may take, it should emphasize the element of self-direction.

Mechanical helps to use of books. It is surprising how many pupils reach high school without having learned to make the most of what may be termed the mechanical helps to be found in any book. These include usually an index, table of contents, preface, headings and subheadings, differences in size of type, summaries, and perhaps appendices. Even paragraph indentations constitute a phase of mechanical help which many pupils in the upper grades fail to utilize fully. It is gratifying to note that Miss Simpson, in her *Supervised Study in History*, recommends, as the opening lesson for junior high-school pupils in that subject, a period spent in getting acquainted with these various mechanical features. Although the need is usually still apparent with pupils of that age, the training in such matters should be carried along from the primary grades.

Even in his earliest connected reading, the pupil may begin to scrutinize the boldly printed heading or

title, both for its significance in forecasting the character of the story and for the questions which it suggests as motives and guides for the reading. A little later he is ready to make conscious use of the paragraph indentation as visibly setting off rather distinct units of material. After some practice in determining in any paragraph the central fact with which all the sentences in it deal, the child is ready for a practical generalization. The essential working feature of this is the expectation that any paragraph, in which the opening sentences bear directly upon the topic under study, will all be of value for that study and consequently worthy of careful reading; while a paragraph in which the opening sentences promise no contribution to the information sought may safely be skipped for that investigation, and the next one tried. This is exactly what a mature student does in skimming a book for needed material. Trials of this general type of paragraph study in the third grade of our training school indicated that pupils of that age were keenly interested and easily capable of considerable skill in such exercises. The fact that so many older pupils ignore paragraph indentations, except as resting places, seems to be due to a lack of definite training in utilizing them as helps to study. The value of such use as a basis for the pupils' own construction of paragraphs in written composition is of course obvious.

Next in order of time and importance should come training in the use of the index and the table of con-

tents. This, along with practice in finding alphabetized information in reference books, may very quickly be taught through some kind of "dictionary game." The time required for giving pupils explicit instructions and adequate practice in the use of these and other mechanical helps, such as the books to which they have access contain, is very little in comparison to its value to the pupils, whether measured in time saved and work accomplished, or in the added confidence and satisfaction arising from knowing better the use of one's daily tools. Not the least of the time-saving features is the summary, which many books contain, usually appearing in the most usable form in the table of contents. Pupils should, of course, understand that the author's summary is not something to be lifted out as a substitute for study, but a guide to the location of needed data.

Too few teachers realize that the most profitable way in which the first recitation with a new textbook can possibly be spent is in learning all the ways in which the author and publishers have tried to help pupils in its study. The significance of the various kinds of type; the purpose and plan of the illustrative features; the appendix, if any, and the possible uses of material there; the preface, and especially the suggestions to students, such as some books contain; all these are examples of the things which may profitably be considered, especially with older pupils, in helping them get acquainted with a new book. To use an ex-

pressive colloquialism drawn from the business world, the aim in all this should be to "sell" them the book as well as teach them how to use it. The pupil who begins his new text with confident anticipation of satisfactory results from its study, and eagerness to try its accessory helps, is well started toward working out his own salvation in it. The teacher who adopts the methods of the demonstrating agent to the extent of accomplishing this is exemplifying a sound type of practical pedagogy.

Outline summary. In summarizing the contents of Chapters V and VI, the plan is followed of presenting these as an outline of principles and rules of effective study. In this form they may be taken up with the pupils themselves in whatever way the teacher thinks best. Although the reasons for, and applications of, these principles and rules have been discussed from the teaching standpoint, it is believed that the adaptation necessary for presenting them to the pupils will not be difficult.

PRINCIPLES AND RULES OF EFFECTIVE STUDY

A. Preliminary steps.

1. *Locating the objective.* Be sure before you start that you have a clear idea of the main thing you mean to accomplish.
2. *Planning the attack.* Decide upon the kind of work needed in your preparation; that is, what information will have to be found, what facts,

if any, must be memorized, what practice will be required, and what problems will need to be solved. If the work is mostly of one kind, choose the set of rules in the following section which applies to it.

B. Adapting methods to type of task.

1. *Memorizing.*
   - *a.* Understand the language. Get the thought of what you are learning and try to see why that language is appropriate for the thought.
   - *b.* Associate the material with its use. Try to see the situation in which you will need to recall the language, and repeat it with this in mind. Also try to feel as you think the writer felt in using that language.
   - *c.* Learn by wholes. Repeat the words in practice straight through just as you expect to say them finally, not going over and over a small portion at a time.
2. *Drill and practice work.*
   - *a.* Be sure you know just what the form or process should be. Don't take chances on repeating something wrong.
   - *b.* Be on guard against errors. Remember that one wrong practice cancels many right ones and doubles the work ahead of you.
   - *c.* Distribute your time. After you have made a beginning, practice a little while at regular

times rather than tire yourself by too much at once.

3. *Collecting and organizing information.*
   a. Decide upon the precise character and use of the information sought. Don't read aimlessly.
   b. Make a tentative classification. Choose headings under which to put the facts you are seeking.
   c. Keep a critical attitude. Make sure that you understand the reasons for statements, or that they rest on good authority.
   d. Take notes under the headings chosen. Use them as a guide to, and record of, your own investigations. Don't copy in your notes.
   e. Make an outline of your final organization, showing your conclusions as to relative importance of facts found. Don't hesitate to change your first classification if your information justifies doing so.
   f. Summarize your facts into a convenient synopsis for ready use when needed. Don't make this longer than you can easily master.
4. *Solving problems.*
   a. Select the vital point. Try to frame one or two questions, the answers to which would give you the solution.
   b. Collect the facts and principles that bear upon the question.

c. Reserve judgment while making a list of what seem probable answers.

d. Try out each conclusion that occurs to you. See if other facts support it.

e. Retest your final judgment by applying it to all the facts. Be sure it is right, and that you can prove it.

C. General measures of economy and efficiency.

1. Make a "flying start." Save your own time and energy by getting warmed up as soon as possible. Safe and easy progress really depends on quick, concentrated study.
2. Rely upon yourself. Don't ask for help on the main points of your undertaking if it can be avoided. It is often better to leave a point unsettled for a while, if you can proceed on other parts unaided.
3. Use a time-card. Place an estimate on the time you expect to use for every activity of the day, and record your success in making it good. See how often you can beat your own record.
4. Have a regular time and place for study. Get used to the surroundings under which you study each subject, and don't change them. Make habit help you.
5. Learn thoroughly the important things. You make a better showing with less effort by learning a few things well than by stumbling over many. Facts left half-learned are unsafe and a waste of time.

6. Take enough time at the close of study to try out your preparation. Imagine the circumstances under which you will need to use it, and see if it is sufficient.
7. Make a personal list of study rules. Choose a few which help you most in the ways you most need help. Don't make the list too long at first, and *use the rules till they become habit.*
8. Estimate quickly the value of a paragraph. If its opening sentences are important for your purpose, examine it all carefully. If they are not, pass quickly on to the next paragraph.
9. Understand and use all the helps in your book, such as index, headings, and synopses. Get acquainted with the whole plan of it. If you don't understand the use of some feature, find out about it; it may give you valuable help.

QUESTIONS FOR STUDY

1. "While the technical facts and laws of psychology are beyond the grasp and comprehension of a majority of those who attend the elementary school, yet certain of the simpler facts which relate to the mental life should constitute a part of the education of all children. They may easily come to know some of the effects of mental habits. They can understand the origin and influence of moods. They can grasp the facts involved in the development of disposition. They

may come to know the folly and uselessness of worry and its crippling effect upon happiness and efficiency. They may be taught the methods of work which will economize effort, nerve-strain, and fatigue. They may know the principles underlying the capacity for concentration, and realize the futility of mental work unaccompanied by a high degree of mental pressure." — Betts, *Class-Room Method and Management*, p. 39.

How many of the statements quoted apply directly to the improvement of methods of study? Select the two which you consider the most important for that purpose, and explain how and when you would present them to elementary-school pupils.

2. Select some textbook, and show what you would do in the first recitation to teach the children how to use it.
3. In what respects may the pupil who faithfully goes over and over a lesson fall short of real study? Suggest ways in which such a pupil might be started toward improvement.
4. It has been said that one important object in using books in school is to teach the proper use of them in later life. Make a list of what you consider the most important things the school encourages as permanent practices in the use of books.

5. In your own experience or observation, what point or step in problem-solving presents the greatest difficulty to pupils? What seems to you the best remedy for this difficulty?
6. To what extent would you try to prevent pupils from "jumping at conclusions" in their study? What is the best check on the dangers from this tendency?
7. Some teachers advise making special provision in the assignment for the "warming-up" stage in study. Suggest ways of doing this.
8. Prepare a time-card for yourself in the manner described, allotting what you consider a reasonable time for each activity of the day. Keep this record for three days, and note what you discover about how your time is spent, and its influence in systematizing your work. Can you suggest ways of making it more effective for the use of children?
9. Roosevelt, in speaking to a group of high-school students, once gave this advice: "When you play, play hard; but when you work, don't play at all." Show how this quotation might be utilized in stimulating pupils to formulate a definite set of study rules.
10. If pupils were having difficulty in the technique of problem-solving, to what extent and in what particulars would appropriate projects be helpful in overcoming the weakness?

11. What do you consider the greatest single element of waste in the usual methods of study as you have known them? How would you begin the task of correcting it?
12. One of the advantages in connection with the solving of project problems is that the verification of results is usually automatic. Show how this is the case, by taking as an illustration some problem in its "natural setting."
13. Suggest various ways in which pupils may be led toward increasing independence and self-reliance in their work without detracting from the socializing influences of the school.
14. Do you believe it feasible to try to interest parents in a simple coöperative plan for improving either the conditions or methods of home-study? If so, outline a very brief plan for such coöperation as you think practicable.
15. Whipple, in his booklet, *How to Study Effectively*, written primarily for "students in our high schools and colleges," lays down thirty-eight rules or maxims to follow in study. Among them are the following:

    Get rid of the idea that you are working for the teacher.

    Don't apply for help until you have to.

    Don't hesitate to mark up your own books to make the essential ideas stand out visibly.

    When the material to be learned by heart presents no obvious rational associations, it is perfectly legitimate to invent some artificial scheme for learning and recalling it.

Discuss the value of the above rules for pupils just making the transition from the elementary to the high school.

16. Another writer says: "The student must clearly distinguish mere facts from conclusions or opinions." How may he be taught to do this, and at what age may the making of such distinctions be properly taught?
17. Offer suggestions, as you would to pupils, regarding ways of trying-out before recitation their own preparation in each of the four types of study.
18. What steps would you take in teaching pupils of the fourth or fifth grade to use the dictionary?

SUGGESTED READINGS

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Swain, Charles. *How to Study* (for mature pupils).

Kitson, H. D. *How to Use Your Mind*, chaps. II, V, and VI.

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CHAPTER VII

THE SUPERVISION OF STUDY

What supervision of study means. During recent years the term "supervised study" has come into familiar use. It refers, in general, to the attempt, in some form or other, to systematize the conditions of study, and to give intelligent direction to the pupils' efforts. The need which it tries to meet is twofold — the irregular and unsatisfactory results of home study, and the waste due to undirected study at school. In the former case, as most teachers have discovered, the pupils whose work most needs extra study do the least of it at home. The misuse of the study period at school has always been so prolific a source of disorder that many teachers have considered that problem the chief concern in supervising study. This misconception is criticized by Davis, in his *The Work of the Teacher*, as follows:

> Where the plan has been tried some teachers conceive their function to be monitorial — that of preserving discipline and keeping pupils at work. Necessary as these are, the teacher who finds time to knit, read extensively, or prepare a university extension lesson while supervising a class of studying pupils confesses by attitude a very inadequate conception of the work.

In strict usage the term "supervised study" has signified that done under the immediate direction of

the same teacher who hears the recitation. This is by far the best arrangement, and should be provided for in programming if conditions will in any way permit. In many schools, however, where the departmental system prevails, this has not been deemed practicable. As a result it frequently happens that pupils from various classes study various lessons under the direction of a single teacher. This situation is so often found, and suggestions for its improvement so often needed, that it has been considered in the following discussion along with the type of supervised study in which the teacher deals only with his own class. The attempt has accordingly been made to present suggestions applicable to either arrangement, and the term "supervision of study" has been used to denote the direction by a teacher of any study done outside the actual recitation period.

Phases frequently neglected. An adequate conception of the function of a teacher in charge of a study class must include alertness to the progress being made by the pupils. If a pupil is not studying, it is the business of the teacher to learn why he is not studying, as well as to see that he gets properly started again. And by this is not meant the usual admonition with its usual result of a more or less convincing imitation of study activity. The alertness should recognize which of the essential conditions of study is lacking, and utilize something besides disciplinary measures to supply the lack. To quote Davis again:

The study supervision should usually find the pupil in need of help, and then render him the assistance needed rather than that asked. To do this requires not alone thorough acquaintance with every pupil, but a knowledge of mental laws as well.

From the foregoing it may be inferred that the supervision of study carries many responsibilities not always fully recognized. By way of compensation it holds also for the real teacher unexpected opportunities for achieving results of a most satisfying sort.

Dangers of helping too much. The practice of giving too much help during the study period is even more objectionable than that of merely keeping order. It is during the study period, even more than in the recitation, that growth in independent self-direction should be stimulated. The pupil's opportunities for achievement in this respect must not be taken from him by unnecessary help. When a child in his study finds a wall which he cannot surmount, the teacher's function is not to lift him over, or tear down the wall for him, but to show him how he may build his own ladder. The right kind of help leaves a pupil with a stronger sense of achievement and self-respect. It leaves him working harder than before, because more confidently and intelligently. The best kind of help does not remove the difficulty, but adds another — a simpler one, which when surmounted puts the child in reach of the objective he could not attain before. Any kind of help which does not make the pupil stronger and more self-

reliant in meeting equal difficulties later is generally worse than no help at all.

1. The physical conditions of study

Lighting. The first responsibility of a supervisor of study is to make sure that the environment is as favorable as it can reasonably be made. Such a feature as the lighting of the study-room seems so simple and so obviously a matter for attention that it should be taken for granted. Yet it is by no means the rule to find study-rooms with the lighting as well regulated as the means provided will permit. The incoming light varies so much during any day that the only safe plan is for the teacher to pass about the room at the beginning of each study period and observe how the light falls upon each desk. If there is an annoying glare, or an insufficiency of light, or vexing shadows, the probable result will be not only inferior study during that period, but a danger of permanent ill-effects also. The teacher who sits calmly at his desk, oblivious of his responsibility in this regard, merits a sharp reminder of his duty.

Seating. Closely related to the matter of lighting is that of seating. This includes not merely some arrangement for discouraging social proclivities, the only phase considered in some study-rooms, but other matters of even greater importance. In the first place, the seating arrangement should be governed by the lighting conditions, and should allow no pupil to suffer

any avoidable handicap in that particular, even though additional resourcefulness in discipline is called for in consequence. In the second place, the plan should provide every pupil with a working-desk and seat of the proper size and height. Scientific data on the injurious effects of ill-fitting desks show that carelessness in this matter is nothing short of criminal. Even if this cogent reason did not exist, the advantage of having each pupil so seated that no physical discomfort interferes with maximum effort is sufficient to repay the pains taken to secure it.

Ventilation. The next important consideration is the matter of ventilation. Even where the heating and ventilating arrangement is automatic, there are numerous occasions when the personal attention of the teacher is necessary to see that the room has an adequate supply of fresh air. When the nostrils of the visitor are assailed by the unmistakable evidence of insufficient ventilation, he is not surprised to find the pupils restless or inattentive. To expect effective study under such conditions is so illogical that even mention of the matter would be an inexcusable prating of the obvious if experience did not disclose the all-too-frequent need of such reminder.

There is probably no teacher to whose attention the importance of these and other related details of schoolroom hygiene has not been called. It is universally accepted, at least academically. But in practice the responsibility for poor study is so often traceable to

neglect in some of these particulars that no discussion of the duties involved in supervising study would be adequate without emphasizing the need of careful attention to environmental conditions.

Individual handicaps or defects. In addition to giving attention to conditions that apply equally to all children, the supervisor should be alert for individual handicaps. The most easily noted of these will be defective sight. The child who squints, frowns, holds his book too close, or otherwise gives evidence of discomfort or difficulty in reading should receive special attention. In a quiet way, without attracting unnecessary attention or embarrassing the child, the teacher should try to discover the cause of the difficulty and whether anything has been done to correct it. A little common sense, supplemented by consulting a reliable source of information, will usually suggest the proper procedure. The inexcusable thing is to allow the handicap to continue uninvestigated, to the detriment of the child's study and perhaps to the aggravation of the handicap, when a little help might result in decided improvement.

Other defects should also receive consideration from the study supervisor. While partial deafness, speech difficulties, adenoids, and other matters affecting oral communication are usually more noticeable in the recitation than in the study period, even these have significance for the study supervisor, and may often be more profitably investigated and helped in

that connection than under the more conspicuous and embarrassing conditions of the recitation. The dominant characteristic in the supervisor's attitude toward a pupil in the study-room should at all times be kindly, sympathetic interest. Especially must this be shown in dealing with the delicate matter of personal defects. It is better to avoid direct reference to them at all than to do so when there is any doubt in the pupil's mind as to the motives or sympathy of the teacher.

Minimizing distractions. Every teacher has some standard as to what constitutes permissible activities and counter-attractions in the study-room. These standards vary so widely that many points fall within the debatable territory. One objection to many of them is the fact that they are preconceived, and applied without special consideration of the particular group of pupils concerned. The question as to what constitutes a distraction to study involves variable factors, depending upon the age of the pupils, the subject of study, the time, and other conditions. The test as to whether anything is objectionable or not in the study-room is the effect upon the work of the children. It is much better for the teacher to be alert for deterrent influences and to meet them as they appear than to rely on a cut-and-dried plan for conducting a study-room. As a matter of fact, it sometimes happens that the greatest distraction to real study is the teacher himself or herself, especially if the system used has been planned more with a view to appearances than to fulfilling the real functions of a study period.

If the teacher holds fast to the rule that all doubtful points are to be decided in the light of the effect upon that particular group of children, there are certain general principles which may be helpful as guides. In the first place, extreme quiet is not usually conducive to the best study. It regularly carries with it an atmosphere of restraint and inhibition, which hinders full absorption in the work of study. The dropping of a book passes unnoticed amid the low buzz of normal study, but brings every one up with a start in an overquiet room. Work is as contagious as idleness. The sight and sound of busy companions is an effective stimulant to any pupil to carry on in his study. On the other hand, no pupil should be unnecessarily noisy in study, especially if it disturbs his neighbors. Half-audible lip movements in study are of this type. The supervisor of the second grade in our training school is convinced that the elimination of lip-sounds increases the speed of silent reading very materially. Since the eye can move so much more rapidly than the lips, the habit of puffing and sibilating over every word is a heavy handicap to quick thought-getting as well as an annoyance to neighbors. Experience indicates that it can be eliminated with gain even in the second grade, and any indulgence in the practice beyond that grade should be discouraged unless a fair trial shows that it is really essential to the pupil's study.

It is neither possible nor desirable to lay down fixed rules regarding communication and movements of

pupils. In a comparatively small group some freedom in such matters is best. As the group becomes larger, the danger of abuse increases. It is wise to have a frank agreement with the pupils, and have them assist in determining the restrictions necessary to the best work. If their coöperation is thus enlisted, only a few simple restrictions are needed.

2. Accessories to study

Reference books and their use. One of the most frequent requests in the study-room is for needed information. Consequently one of the first duties of the supervisor is directing pupils in finding out things for themselves. It may even develop that the recitation has not successfully completed its work of teaching the pupils how to find needed information in the text. More often, however, the study period will be the occasion of teaching how to supplement the text by the use of other sources. To be sure, it is easier and quicker to supply the information direct, and teachers sometimes excuse such help on the ground that it saves the pupil's time for studying his "real lesson." Even granting the importance of the assigned work, the real question is whether learning how and where to find out for himself what he needs is not of so much more value to the pupil than the passive study of ready-prepared material as to give the former the right of way.

In order to provide practice in the effective use of

reference books, the regular assignment should frequently include items requiring such supplementary investigation. Preliminary suggestions for the pupils' guidance should be given in the assignment, leaving, however, some field for resourcefulness and the pleasure of discovery. The follow-up work during the study period can thus be centered on the pupils who most need further suggestions without spoiling the fun for those who can help themselves.

Skillful use of the opportunities for stimulating individual investigation was made by a certain study supervisor in a junior high school. His work combined vocational guidance and supervision of the study-hall. Whenever a pupil had apparently finished his regular work, the supervisor made it a point to ask the pupil, as a personal favor, to find out certain industrial facts for use in the vocational study the supervisor was making. The particular topic was, of course, chosen with reference to the supervisor's estimate of that pupil's interests or aptitudes. Care had also been taken to procure from the central library the best available books for such use. The pupils found the doing of these little favors very interesting, and many of them voluntarily carried the investigations much farther. As a device for promoting vocational enlightenment it was unusually successful, and at the same time gave skill in independent investigation. The idea may be applied to almost every line of work, especially in connection with the volunteer phases of

the elastic assignment, and its spirit is the ideal one to actuate practice in the proper use of supplementary sources in study.

Illustrative material. Mention has previously been made of the value of illustrative material for securing continued application to an undertaking. The extent to which such accessories contribute interest in undertaking a task, as well as safeguards to the attentive, persistent study necessary for successful completion, make them an invaluable adjunct. The best schools are now providing definite facilities and even special rooms for such activity in connection with study, designating them by various names, from plain "workroom" to the impressive "project laboratory."

The teacher who is not fortunate enough to have such special advantages for use with a study-class may still make profitable use of the principle. The study-room itself may and should be a workroom in a much more active sense than is the conventional one. At the very least there should be free use of the charts, globes, models, construction material, and collections. The spirit of the room should be that of a place for work — active, constructive work, instead of a place for passivity and restraint. Such work frequently requires materials for manipulation and application, and full, normal study activity is often handicapped without them. There is, of course, a limit at which such accessories may become a distraction to other pupils, but a resourceful teacher can encourage much valuable use

of illustrative material without transgressing that limit.

3. The spirit and tone of the study-room

The working atmosphere. A boy who had been reported to a high-school principal for some prank in the study-hall was rather sharply taken to task in the office. His behavior was regularly good, and the principal expressed disappointment at conduct so silly and so unusual. He then asked the boy, "Why were you not studying, instead of planning such nonsense?" The reply was immediate; "Study? Nobody studies at that period." The boy's comment was perhaps an exaggerated characterization of a state of affairs due to a wrong spirit and atmosphere in the study-room. If there is a genuine working atmosphere, supervision is easy. Without it, discipline becomes a prominent and annoying problem.

It has already been suggested that both work and idleness are contagious. Until one or the other becomes habitual, for a certain group at a certain time and place, it is often a matter of priority in exposure that determines which shall be caught. An immediate and business-like beginning that suggests the importance of making even the first minute count, will go far toward making such a tone habitual, and will furnish insurance against a counter-contagion. On the other hand, a dawdling and dallying start invites lengthening procrastination and idleness, until the

infection weakens even the good resolutions of reliable pupils. In setting this tone, the attitude of the supervisor is the most potent factor. If he presents the happy combination of an energetic, business-like attitude with a genial manner, it is easy to set everything going at the first moment with the swing of cheerful, alert activity. The cultivation of this attitude and manner should be one of the first aims of a study supervisor.

Attitude of pupils toward teacher. An excellent index of the tone and spirit of the room is the attitude of the pupils toward the supervisor. If they regard him as a taskmaster or "overseer," his opportunities for helping them toward real study are very slight. In fact, their tendency will be to regard themselves as working for the teacher instead of working for themselves — an attitude fatal to independence in study. Pupils develop most in study under a supervisor whose leadership they fully accept and respect. They withhold this endorsement from a teacher who is either too exacting or too easy. In the former case the pupils resent the infringement upon their own initiative and individuality. On the other hand, they cannot respect one whose requirements fail to call forth their best efforts, and who weakens their respect by help too easily obtained. One feels admiration for the boy who was wrestling with a difficulty, but who scorned the suggestion that he ask his teacher because, as he said, "she always helps a fellow too much." Most pupils,

unfortunately, do not cherish their self-reliance to this extent and willingly accept unnecessary help, but they realize instinctively that the procedure is unworthy of themselves and of the function expected of a teacher.

Children accord their most genuine esteem to the teacher to whom they can take their difficulties confident of an appreciative appraisal and a just response. They are sure that if the difficulty is trivial, they will be made to see that fact without ridicule; if it is a real difficulty, they will be guided toward a point of attack where they may earn the satisfaction of a real achievement, without a discouraging waste of their energies. Pupils who have such an attitude as this toward their study supervisor — adviser is perhaps a better term — reflect it in their attitude toward study and an effort to keep the spirit of their work upon a worthy plane.

Coöperation in study. Reference has previously been made to published data showing the stimulating influence of associates upon the work done by any individual. The modern tendency is to make a yet wider use of the social impulses in the matter of preparing lessons. It is probable that ways will be developed of making them extremely valuable allies to study. At any rate, the old idea of discouraging them as wholly subversive of proper study is no longer accepted. Strayer and Norsworthy criticize the usual custom in the following language:

> An over-emphasis upon marks and distinctions, and a lack

of attention to the opportunities which the school offers for helpfulness and coöperation, have often resulted in the development of an individualistic attitude almost entirely opposed to the purpose or aim of education as we commonly accept it.

The authors go on to comment on the odd fact that only in kindergarten and the seminar room for graduate students is coöperation on tasks encouraged, while in all the intervening grades "there is little or no opportunity for communication or coöperation," and "helping one's neighbors has often been declared against the rule by teachers."

There are two forms in which successful use is being made of the spirit of coöperation in giving a wholesome tone to the study group. One is the extension of the characteristic activities of the socialized recitation into the study period. By this arrangement it is agreed in the recitation period what contribution is to be prepared by each pupil as his share of the group undertaking. During the study period, although each pupil has his individual task, the spirit of his work is essentially social and coöperative. Brief conferences may be needed between pupils to preserve coördination among various related parts. The result is a helpful stimulation to all concerned, and the spirit of the entire study group is almost always noticeably improved by the friendly interest which every pupil knows the others to feel in his doing his work well.

The other form in which coöperation is employed is in actual group work. While this is largely in the

experimental stage, it promises to bring about some radical revision in the accepted notions of appropriate activities in the study-room. Wherever there is special space available for group consultation without undue disturbance to others, it is immediately practicable and possesses unusual advantages, not the least of which is the fact that it is the normal way in which human beings outside of school coöperate when they wish to learn new things. Work which involves practice for skill, memorizing, or other activity directed toward individual attainments must necessarily be mastered by individual study. But such matters as organization of information or solving and verifying general problems are often most effectively and profitably handled in group study. This requires comparatively small study classes in order to be practicable, which adds another argument against the wasteful custom of herding crowds of pupils into a so-called study-room. Most study-rooms, however, have facilities for some utilization and encouragement of the spirit of coöperation, and the resultant improvement in the tone of the room will justify a fair trial of it.

4. Correlation between recitation and study supervision

Special lessons for special difficulties. The most vital objection to the practice of having the study period supervised by some other than the recitation teacher is that there is ordinarily no system of definite coöperation between the two. Perfect correlation

between the activities of the study and recitation periods is possible, of course, only when they are under the same teacher. But even then the opportunity for diagnosing class difficulties which the recitation should cure is often overlooked. If a class seems to be having unusual difficulty with a lesson, it is the duty of the supervisor to discover what type of lesson it is, and the particular nature of the difficulty. If it is not that teacher's own assignment, the facts discovered should be reported to the proper teacher so that special attention in the recitation may be given to that need. In no other way can the work of the recitation be adequately adapted to helping pupils learn effective methods of study. A preliminary statement from the pupils as to how they expect to proceed, and a careful investigation of results at the next recitation, will reveal to a certain extent the nature of the pupils' difficulties, but experienced teachers know how easy it is to misinterpret study activities by recitation evidence alone.

It is only in the actual process of study that one can discover the use of clumsy, ineffective methods of attacking a plain assignment. A how-to-study lesson, as suggested in the preceding chapter, especially planned to meet the needs discovered, will effect a great saving in time. Moreover, the immediateness of application will make it much more permanently valuable than if it had not been aimed at the type of weakness of most direct concern.

Follow-up work. A closely related phase of correlat-

ing the study and recitation is the practice of "follow-up" work: that is, the study period should not only be used to discover wherein special instruction on study methods is needed, but should serve the reciprocal function of testing adequacy of such instruction and supplementing it in any necessary details. For example, a class has been taught how to collect and organize information, and has been assigned a topic upon which to employ the methods given. The supervisor, if not himself the teacher of the class, should know of the special lesson and assignment so as to be alert for evidence of misconception on the part of any pupil. A word or two of individual instruction, such as certain pupils seem always to need, will suffice to straighten out an error of application which otherwise would have been a permanent handicap.

The ways mentioned are merely suggestive of the possibilities of correlating the work of the study and recitation periods. If the study work is supervised by the recitation teacher, it is possible, even while hearing another recitation, to observe details that will be extremely valuable for use in making the recitation more helpful. If circumstances make it necessary to have separate teachers, the situation is an unfortunate one, but there is no excuse for making it doubly so by the lack of a definite working plan of coöperation between the two instructors, or a shirking on either side of the joint responsibility.

5. Supervised study and the individual pupil

Diagnosing difficulties. The first responsibility of the supervisor toward the individual pupil in difficulty is to determine the particular nature of that difficulty. There is no phase of teaching ability more rare than skill in this respect. The common error is in assuming that it is necessary only to see what the pupil should do and have him do it. Accordingly there is addressed to him a series of leading questions, such as, "Don't you see this?" and, "Now, don't you see that?" The pupil vaguely feels that it would be a confession of utter stupidity to answer in the negative, so he often gives assent when in truth he sees only baffling words and cryptic lines. The natural result of such treatment is the feeling on the part of the pupil that he should go ahead and do something, whether he understands it or not, with the hope of being able to conceal his continued ignorance on that particular point.

A real diagnosis of difficulties must begin by getting the pupil's viewpoint. The first step is to determine just what line of attack the pupil is taking and why he has chosen it. The right way of doing the task is not nearly so important for the moment as discovering the pupil's way of thinking, and where he left the right path. Until the exact point of confusion is discovered, any attempt to rush him ahead on the right process is likely not only to carry along the element of perplexity, but also to make its correction harder in the future.

Most difficulties have their origin in a misunderstood or inadequate assignment. If the trouble seems to be of that sort, the proper course is to have the pupil tell what was assigned. When he has been helped to a proper interpretation of the assignment, he is ready to decide on a method of attack appropriate to that type of task. The real obstacle, when located, is usually a small item, but the look of genuine relief on a pupil's face when he once more sees his way clear is proof of its importance to him. It is difficult to use general rules in locating the difficulties of pupils, because they may appear in so many unexpected forms. The one thing that can be set down as indispensable is the ability to call forth frank expression from the pupil — a willingness on his part to let the supervisor know his blunders in their worst light. It hardly need be said that such frankness comes only from confidence that his mistakes will not be viewed with amusement, ridicule, reproach, or surprised superiority — with anything, in fact, except helpful sympathy.

The "ounce of prevention." In most study classes certain pupils seem to be clumsy in their methods of study, prone to become confused and discouraged in their undertakings. The danger is that the consequent lack of confidence may become fixed, or even amount to indifference. The pupil who regularly gets things wrong is tempted to conclude that it does not matter much what he tries first. With all pupils of habitual inefficiency in study the supervisor should apply the

"ounce of prevention" at the beginning of the study period. One teacher found practically her entire study group without confidence or system in their study. Accordingly she adopted this plan of advance preventive measures. At the beginning of the study period she said: "Let us first decide exactly what we expect to accomplish in this period. Raise your hand as soon as you decide this, and do not begin study until you have settled it." A look of interest was at once apparent at this novel procedure. When it was done, and tested in two or three cases, she said: "Now make a list of the three most important things to be done in your study, and decide how you will know when each one is satisfactorily prepared. As soon as you have decided this, raise your hand to let me know, and then begin your study." Those who were late in raising their hands were, of course, given special attention, and the attempt was made to have every pupil know by items his plan of study before he started.

Most supervisors will find a relatively small number of pupils in special need of formally taking such advance steps. As soon as these are led merely to make a list of definite things which they are to do in definite order, the improvement is usually marked, because their weakness is most often due to regarding the details as a tangled mass and so floundering about without getting a firm grip upon any segregated point. The few who still need suggestions on advance planning are usually problems for special treatment in

the recitation period, followed by correlated supervision.

Recognizing relative maturity. In all phases of supervised study the maturity of the pupils should, of course, receive due consideration. No sensible person would expect much capacity for self-direction among very small children. Growth in this capacity should be steady as pupils advance through the grades, but this latter fact is ignored in some study-rooms. As a result an examination of the standards in this respect to be observed in different intermediate schools reveals a wide variation. No one relishes being treated as more childish than he really is, and the supervisor who holds to primary standards with older pupils can never secure genuine coöperation. On the other hand, if a pupil feels that his ability to carry responsibility is fully appreciated, he responds accordingly. This should not be understood as favoring loose requirements — that is perhaps worse than autocratic insistence on proper ones. The pupil should be allowed to feel that he may earn the privilege of undertaking some phases of self-direction, and that the retention of that privilege is dependent on his worthy use of it. There is nothing in a teacher's attitude to which pupils respond with more appreciation than a full recognition of their stage of maturity, and nothing which they resent so keenly as its absence. As a basis for a wholesome spirit in the room, and for the coöperative effort necessary to growth in self-direction, this appreciative response from the pupils is almost indispensable.

"Speeding-up" study. The value of alert, aggressive study has been so often emphasized in earlier sections of this book that mention of it here hardly seems necessary. But a dragging, dawdling, time-killing pace is such a besetting sin of the study period that the supervisor needs to be on constant guard against its influence. It is a strange and unfortunate fact that many supervisors aggravate this habit by their well-intentioned attempts to discourage it: that is, when a pupil is idle, it seems the proper thing to remind him that he should get to work. But a frequent result of this is that he develops a sort of hybrid activity, just far enough removed from idleness to escape reprimand as such, but wholly unworthy of being called study. Many pupils can thus make a simple assignment, which should be finished in a few minutes, serve for a whole period as a cloak for pernicious loitering. The resultant preparation is practically worthless, but they possess an incontestable defense in the matter of time spent, and, in fact, they often think they have really been studying.

The only effective method of speeding-up study activity is through positive rather than negative incentives. The assignment and time-card can assist by having pupils set the number of minutes within which they expect to finish each item assigned. With older pupils convincing experiments can be used to show the greater results in proportion to the effort when advantage is taken of momentum and the incisive power of

concentration. If provision has been made whereby the pupils are able to test the completeness of their preparation, a reward may be given for intensive study by some freedom of choice as to further employment, preferably in connection with making the assignment itself, although it may be provided in the study period if the situation justifies it.

Helping pupils test their preparation. Although responsibility for preparing pupils to test the adequacy of their own preparation belongs to the recitation and assignment, as discussed in Chapter II, the immediate need for applying such tests is so often apparent in the study period that the supervisor cannot ignore it. A familiar figure in the study-room is the pupil who has stopped work and whose reply, when asked about his study, is, "I *think* I have my lesson." On a par with this pupil, who gives himself the benefit of the doubt, is the conscientious one who, in equal uncertainty as to the completion of his preparation, continues to fuss over the work from a sense of duty. Both need to know how to test their preparation, and the duty thus falls to the study supervisor, either as follow-up work from the recitation or as a direct measure to meet an obvious need. Suggestions for doing this will be found in the preceding chapter.

Self-engineering in study as the goal of supervision. The term "self-engineering" has previously been used in reference to the pupil's activity in testing methods of study and adopting for permanent use

those which he finds most helpful. In a somewhat broader sense the term very aptly designates what should be the goal in the supervision of study. It implies, first of all, that the pupil should be led to discover his own strong points and weak points in study. On the basis of this knowledge he chooses a method of attack that will stress the needed points, just as the engineer reënforces the places of critical importance. The first stage of this process seems to present little difficulty to most pupils, as they are usually quite ready to declare what things are easy for them and what are uncomfortably hard. In games and in various forms of physical activity children are not only aware, as a rule, of their shortcomings, but usually take means of atoning for them by some protective trick. Self-engineering would carry this principle into their study. Put in the pupil's own phraseology, he would not only realize where he was most likely to fall down, but would also plan how to guard against the repetition of that mistake.

Ultimately, of course, this goal must include the setting of his own task by the student. The value of acquiring proficiency in this as an adjunct to wise citizenship, and the corresponding importance of having pupils take an increasing share of responsibility for directing their own investigations, has already been touched upon. Independence in thought must characterize the trustworthy citizen, and its encouragement linked with self-restraint belongs among the important aims in the supervision of study.

A third important phase in which self-engineering should appear is proficiency in judging accurately of one's own results. The pupil should not only be able to set his own objective and plan a safe campaign for reaching it, but he should be able to satisfy himself with regard to the success or failure of his efforts. Of the three, the last is probably the most vital of all the elements in self-directed study. All three, however, stand out as the dominant aims which should guide the organization and technique of the supervision of study. If these are successfully accomplished, the result may fairly be characterized as the attainment of the goal of supervised study.

Chapter summary. The supervision of study includes those features of organization or study-room management which aim to systematize the conditions of study and give intelligent direction to the pupils' efforts. This can be done far more effectively by the same teacher who conducts the recitation, but, where conditions still prevent such an arrangement, valuable supervision can be given by any study-room teacher. It requires alertness to the pupils' difficulties and involves responsibility both for discovering the causes of these and for helping the pupils find ways of overcoming them. The supervisor should be on guard against giving the wrong kind of help. The best kind is that which influences the pupil to work harder and more intelligently, and leaves him stronger and more confident for the next task.

The first responsibility in supervision is for making the physical conditions as favorable as possible for the best work by every pupil. This includes attention to lighting, seating, and ventilation; tactful consideration of individual defects or handicaps; and the minimizing of distractions that interfere with proper study. The accessories to study, such as reference books and illustrative material, should be properly arranged, and the pupils guided in the use of them.

The spirit and tone of the study-room are of vital importance. Every care should be taken to secure a coöperative response from the pupils toward the teacher in charge. This spirit of coöperation should extend to the attitude of the pupils toward the work of each other, so that mutual interests may be utilized as far as practicable. The correlation between the study and recitation work should be close and intelligent at all times; the recitation teacher should have full information as to study-room weaknesses so that special lessons may be given to correct them, and these lessons in turn are to be followed up by supplementary help in the study period.

The greater share of the supervisor's time will be given to individual cases. Difficulties should be carefully analyzed. Pupils with any habitual weakness should be fortified in advance against recurrence of errors. The relative maturity of children should be recognized, and constantly increasing responsibility offered. Pupils should be helped toward vigorous,

intensive study, and shown how to test and make certain their preparation. At all times the aim and goal of supervision should be the development of ability to engage in independent, self-directed effort — the encouragement of self-engineering in study.

QUESTIONS FOR STUDY

1. How may a study supervisor help a pupil over a difficulty and at the same time increase the latter's independence?
2. Suggest ways in which small numbers of pupils may do group study to advantage. What are the advantages in such study?
3. A study supervisor noticed that a certain pupil regularly began work in an apparently satisfactory manner, but after a few minutes would usually stop studying and begin gazing about. Although this boy was not inclined to be disorderly at such times, he was an appreciative spectator whenever a disturbance was visible. Tell what steps you think should be taken in an attempt to discover and correct the causes of this pupil's ineffective study.
4. What are the advantages in having the study in any subject supervised by the same teacher who conducts the recitation, over (*a*) study supervised by another teacher; (*b*) home study.
5. If a teacher supervising a study class observes that a pupil is not studying, what objections are

there to following the usual custom of reminding him that he should get to work?

6. Give an example from your own experience or observation to show the ill effects of furnishing too much help to pupils in their study. Can you suggest a better way in which the same situation might have been handled?
7. "Guided at first by the teacher, and gradually more and more by their own developing experience, the pupils must learn to judge of the value of their own work, their own recitations, their own theories. To be helpful in this respect, the teacher must be on such terms with his pupils that his presence does not stand in the way of free mental activity. A teacher who frightens his class, or who is over-serious, or who is sarcastic, will not be able to make much progress in training pupils to study, since his attitude retards rather than accelerates thinking on the part of the class." — Earhart, *Training Children to Study*, p. 143.

   Show how the above has especial application to the study-room supervisor. Mention other characteristics which might prevent a teacher from securing the best response from pupils during the study period.
8. Outline a plan of coöperation between teacher and supervisor, with suggested "follow-up" work, to help a pupil who is discouraged and gives up too easily in his arithmetic study.

9. Name at least four of the most common kinds of distraction occurring in the average study-room, and suggest ways of obviating each.
10. Make a list of all the reasons which you consider legitimate ones for allowing pupils to change seats during a study period, and give the conditions that would justify each.
11. It has been urged that the study-room "should be essentially a laboratory." In what sense would you accept this statement, and to what extent do you consider the laboratory spirit desirable in the study-room?
12. If pupils have no questions to ask the study supervisor, what objection is there to the latter's marking papers or preparing work of his own during a study period?
13. A very frequent cause of half-hearted study is the idea on the part of the pupil that he is "working for the teacher." What can the study supervisor do to correct this? If, in your opinion, it calls for coöperation with the recitation teacher, suggest a plan for such coöperation.
14. Describe, as you would to pupils, the amount of self-direction in study that may reasonably be expected by the time the elementary grades are completed. Explain what means you would use to induce them to set such a standard for themselves.
15. Make a list of all the accessories and study-helps

which you think any study-room for upper-grade pupils should contain, telling what use the children of any particular grade should be able to make of each.

16. Exercise 7 called attention to conduct and characteristics to be avoided in a study supervisor. Conversely, there are certain positive qualities which should be cultivated by every such teacher. Make a list of such qualities, explaining the influence of each upon the working response of the pupils.
17. Tell which of the characteristics named above would most influence the diffident pupil who cannot or does not readily reveal his difficulties in study. Suggest ways of drawing out such a pupil and helping him to overcome his diffidence.
18. Name four or five inducements or incentives that you consider legitimate for speeding-up the rate of study. What checks would you use with these to prevent the quality of work from deteriorating?

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Earhart, Lida B. *Teaching Children to Study*, chap. VIII.
Strayer, G. D. *A Brief Course in the Teaching Process*, chap. VIII.
Simpson, Mabel E. *Supervised Study in History*, chap. II.
Colgrove, C. P. *The Teacher and the School*, chap. XX.
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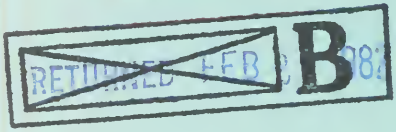

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